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SUE SWINDELL MARTIN

PHYSIOLOGICAL AND PSYCHOLOGICAL FACTORS  
RELATED TO SELECTED FOOD CHOICES:  
FIVE CASE STUDIES

by

Sue Swindell Martin

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The purpose of the study was to investigate the inter-relationship between foods selected and consumed and the behavior exhibited by five preschool children. These children were enrolled in the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro during the spring semester.

For a period of twenty consecutive days the twenty-four children enrolled in the nursery school selected their food for the noon meal cafeteria style. Each child entered the room for lunch in random order and selected his food from twenty-four foods which had been randomly placed, by groups, on a serving table. The groups were meat and meat substitutes, vegetables, finger foods, and desserts, with bread also being offered, and milk already at each child's place. The food, when selected by the child, was served to him in a predetermined amount by trained adults. The predetermined "serving" of food was most frequently one tablespoon and was weighed each day prior to the noon meal to the nearest tenth of a gram. Each day the same nursery school teacher or a graduate student sat with the children at a regularly assigned place at one of five tables. The adult did not eat so could accurately check the number of servings of the specific foods each child selected. The teacher or graduate student neither encouraged or discouraged the child to eat.

Words such as "food" and "eat" were not mentioned. The children could return to the serving table at any time during the meal to get more food, and the meal was not over until the last child willingly left the table. In order to determine the amount consumed, the plate waste was weighed and subtracted from the amount served.

The children in the study were selected on the basis of their being present every day of the twenty days in which the food was served cafeteria style. Although there was an equal number of boys and girls in the nursery school, only five girls were present every day. The foods selected and consumed by each of the five children, the results of behavior profiles checked by five staff members and five student teachers in the nursery school, and the background information on each child filed in the nursery school were presented in case study form for the five children. The behavior profile used was developed at the Merrill-Palmer Institute and measured three tendencies of nine aspects of behavior.

Generalizations or specific assumptions could not be drawn because the group of children used in the study was small; however, certain conclusions presented were as follows:

1. A child who is from a friendly, pleasant family tends to judge the amount of food which he can eat.
2. A child who appears to have a stable personality tends to show stability in food selection patterns.

3. A child whose social behavior is unpredictable tends to be unpredictable in other areas of behavior.

4. A child from a family environment in which parental discipline is not consistent and the child does not know what is expected of him tends to consume a low percentage of foods selected.

5. A child whose behavior is consistent tends to exhibit consistent activity or decision making patterns.

6. Preschool children tend to consume relatively small amounts of food.

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## CHAPTER I

### THE PROBLEM

During the preschool years the child in learning to live in his environment acquires behavior that will carry over into later childhood, adolescence, and adulthood. During the preschool years foundations for his personality are being formed and routines are being established. The routine of eating is especially important in the total physical and social development of the child. Read (1955, 123) noted that the earliest and strongest feelings of the child were related to the feeding situation. In this manner an interrelationship of personality and eating habits is suggested. Gardner (1964, 250) defined personality as consisting of the emotional life of the child, his intellectual behavior, his relationships with other people, and his muscular coordination and at the same time it is more than the sum of these parts. The personality of the child is his total orientation toward his world.

Food is important in at least four areas of a child's development. Emotionally and socially, it provides for a primary interpersonal relationship with other people. Mentally, it provides for an important learning process. The mouth is a sensory organ through which taste and feel



are perceived. Sounds made by the food in the mouth are also an important part of this learning process. Physically, food helps develop eye, hand, and mouth coordination through the daily practice of the use of the eyes and hands together in the actual process of taking the food from the plate and putting it in the mouth. The complexities of swallowing are being learned through the practice of swallowing (Stitt, 1962, 5). The functions of food in the body are to build body tissues, to regulate body processes, and to supply energy (Chaney, 1960, 2<sup>5</sup>).

The status of nutrition of an individual is closely related to his physical well-being. Good nutrition is assured by furnishing adequate nourishment to a well-functioning body (Wilson, Fisher, and Fuqua, 1959, 313). The rate of physical growth of the child is slowing down during the period of early childhood which extends from eighteen months of age to six years of age (Morgan, 1962, 37). However, growth during this period places a heavy demand on the child because of the tremendous energy outlay in his almost incessant motor activity. The child during the preschool years often experiences a diminished interest in food (Stitt, 1962, 5).

The change in food consumption patterns from infancy to early childhood, if misunderstood, may lead to parents' and teachers' over-concern for the adequacy of the child's diet (Dierks and Morse, 1965, 292). Stitt (1962, 5)

suggested that in feeding, the child's nutritional needs should stress quality rather than quantity of foods. Because the requirements of the young child tend to be very specific, they require guidance and supervision (Peckos, 1957, 278). While eating, the importance of helping children establish good food habits has been stated by Ethel Martin (1954, p. 1):

There is increasing awareness that food habits are inextricably associated with the emotional and social development of a child from earliest infancy. The goal therefore becomes not good nutrition, as such, but happy, satisfied, adjusted children, providing the favorable conditions which foster the development of good food habits and from which satisfactory nutritional status is a natural outcome.

Morgan (1962, p. 35) stated that ". . . of all the factors which may influence children's eating habits, it seems. . . that there can be little doubt that the family is the most important. . . ." She also mentioned two aspects of the importance of the family influences: (1) the environment it provides--whether it offers stress or pleasure, and (2) the food likes and dislikes of other family members (Morgan, 1962, 35, 37). The first aspect has appeared frequently in the literature and is in agreement with Morgan while the second aspect has been questioned. In a recent investigation, Hodge (1963) found no relationship between the kinds of food consumed by a group of children and food preferences of their parents. There is an apparent need to investigate the interrelationship of



choices and consumption of food by preschoolers and their behavior including family relationships.

#### Purpose of the Study

Few case studies have been conducted concerning food selection and consumption patterns of the preschool child. The importance of helping the young child establish good food habits was frequently mentioned in the literature. Also indicated in the literature was the importance of having good food patterns set at home. The present investigation is a depth study of five preschoolers in the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro and home influences which might conceivably affect the food selection patterns of the children.

The overall objective was to study the interrelationships between food selected, food consumed, and behavior exhibited by five preschoolers. Specific comparisons were made between choice and consumption of food and such factors as amount of activity, vigor of activity, sensitivity to stimulation, reactivity, alertness, characteristic mien, characteristic mood, stability of mood, and frustration tolerance.

## CHAPTER II

### REVIEW OF THE LITERATURE

A review of the literature reveals very few available studies on the interrelationship of eating habits and behavior. This interrelationship, however, is frequently mentioned in literature. Ethel Martin (1954) suggested that there was an increasing awareness of food habits being associated with emotional and social development of the child.

Leverton (1962, 9) indicated that a way to evaluate the diets of children was to study the kinds and amounts of food they consumed as well as their patterns of food selection. She wrote, "Patterns of behavior can be more potent than knowledge in directing actions. . .In every aspect of behavior. . .we seek patterns to use as guide lines. . ."

There are some expected reactions of children to food. Gesell and Ilg (1949) in describing the three year old wrote:

The fluctuations of 30 months are now settling down to a fair appetite. Breakfast and supper are now more frequently the best meals, though there are many variations. The milk intake is definitely on the rise. Meat, fruit, and milk are now on the preferred list. Desserts and sweets are more desired, but cannot yet be used as a goal toward which to work (48 months). Vegetables are now slowly being accepted. The child often wants foods that require more chewing, such as raw vegetables, potato skins, or meat on a bone (p. 207).

Although the 3 year old child is eating well alone, he may not eat well at the family table. . .He is apt to demand everyone's attention and wants to have everything in sight. Because of his dawdling he is either coaxed, fed, or left at the table to finish alone after the rest of the family has left (p. 208).

Gesell and Ilg (1949) described the four year old as follows:

The four year old appetite is still only fair, but by four and a half it is good to very good, with no special meal leading another. The child drinks his milk well and rapidly.

There is some tendency to demand repetition. The four year old either goes on food jags or food strikes, which usually drop out by four and a half, when the appetite is keener.

Most four year olds have difficulty not letting their talking interfere with their eating. . . (p. 231).

Peckos (1957, 279) indicated that at different ages the appetite of the child varies a great deal from meal to meal, but with increasing age this variability tends to diminish. "A child's food habits reflect his nutritional needs, the degree of maturity of his body, his personal satisfaction and dissatisfactions, and the impact of the economics and social world upon him."

The social behavior of the child can be expected to be different at different ages. Gesell and Ilg (1949, 209, 210) stated that the three year old is more ready to take suggestion. He prefers playing with another child but he cannot make his wants known unless he frequently sees a certain child. When playing outdoors he plays best with gross motor equipment. After thirty minutes of play with

another child he often needs guidance. He is beginning to be sensitive to the needs of others. He is beginning to develop an imaginary life which reaches its peak at three and a half. By four this play usually develops into dramatic social play involving other children.

The four year old is described as a truly social being who wants to be with playmates often and is beginning to develop a strong feeling for his home and family (Gesell and Ilg, 1949, 233, 234). He is beginning to boast about his family. He has a tendency to be domineering. His imaginative play is closer to the realm of likelihood with this play developing into social dramatic play.

Figuratively speaking the five year old has been described as having already climbed the steepest ascent in development and having reached a sloping plateau (Gesell and Ilg, 1949, 62, 63, 65, 67). Five could be said to be an age of smooth temperament. Because he is neither unduly aggressive or acquisitive he plays peacefully with playmates. He is in excellent equilibrium. He has an increasing interest in the real world. Because of this new interest he shows little tolerance for too much magic and fairy tales but instead enjoys domestic play. In this way the five year old makes the familiar even more familiar. Each child in the present study approximates either the three, four, or five year old stage in social development.

Recommendations for Establishing Good  
Mealtime Routines in Preschoolers

Because the requirements of the growing child are very specific he is in need of constant guidance and supervision. The task of establishing good food habits in children can be made easier if some fundamental concepts are observed (Peckos, 1957, 278). Hille (1960, 4) suggested that a quiet time should be observed prior to the mealtime and that mealtime should be a relaxed and peaceful occasion.

Children usually prefer foods that are served separately, not mixed foods (Peckos, 1957, 278). Food should be served in a form that is manageable for the young child. Meat that is cut in bite-size portions, vegetables cut in strips, and sectioned fruit are easily handled by the child. The mechanics of eating are made easier if the dishes and flatware are scaled down to child size (Hille, 1960, 4). Moderate-size portions of food should be served with the understanding that there are available seconds. Introduction of new food into the diet of children works best if this is done gradually and the new foods are served with more familiar ones (Hille, 1960, 4). The child will usually come to accept a wide variety of food if the above recommendations are followed and if no great stress is put on eating any one food or a large quantity of it (Morgan, 1962, 38).

If the food has been given to the child under reasonably good circumstances and he refuses to eat it and begins to play in it or throw it, removing it from the table without drawing attention to it can help the child to learn to



eat more skillfully and make messiness become less prevalent. A nursery school will often help decidedly in developing good eating habits (Morgan, 1962, 38). At the Nursery School (School of Home Economics) of the University of North Carolina at Greensboro, the policies followed for the noon meal were outlined by the director as ones which tended to develop acceptable eating habits. The policies used were listed as follows:

Children should be told the truth as to what foods are. (i.e. liver, spinach)

Children are given small first servings, with opportunity and encouragement to take "seconds."

Children are encouraged to eat but NOT forced. Children are served a bite of each disliked food so if they "decide to taste it" they can.

Children are not fed by teachers. Children are encouraged to use either a fork or spoon.

Food is presented to children in a very positive and very matter-of-fact manner.

Children are presented food objectively, because they need it, not that it is to be eaten as a favor to any adult.

Spilling, dropping, and breaking of dishes are accepted as accidents. Children are told how to manage to avoid accidents but not blamed nor made to feel guilty for accidents.

Children are neither bribed nor rewarded for eating. Verbal praise of the act as encouragement is frequently given by teachers.

New foods are served in small amounts until it has become a familiar food.

After the meal begins, no child may go into the kitchen. The cart at the kitchen door closes the kitchen off. Seconds are served by the cook at the kitchen counter.

Teachers encourage "early finishers" to remain at the table for a while so that their getting dessert early would not "trigger" a general rush for dessert.

When children have finished eating they will leave the table and go to the playroom or outside as directed. (Nursery School Bulletin, VIII, 1)

#### Food Consumption Studies

A study was conducted at the National Child Research Center by Hahn and Steibeling (1938) on the types of meals served to a group of 154 children from the age of 24 months to 71 months. Observations were made both at school and at home over a period of three to five days.

The results showed that the children ate between 60 and 75 grams of meat, eggs, or other main dishes at the noon meal. One exception was beef stew made with many vegetables. The results indicated that the children ate more stew than any of the other dishes. This was unusual in that the children were reported to have eaten less of foods in combination as Spanish rice. The children were reported to have eaten less of liver and broiled meat than any of the other main dishes. More potatoes and scalloped tomatoes were consumed than other vegetables. More food was consumed by the oldest group; however, the difference reported was not large. With increasing age the children tended to consume more fats, potatoes, tomatoes, greens and leafy, and colored vegetables, and more milk. Wide fluctuation was found in the energy value of the food consumed by the

children. It was found that instead of being correlated with age and weight the factors most significant were: the manner in which the food was served, and the activity of the child.

Sweeney and Chatfield (1932) reported a study at the Merrill-Palmer Institute in which a seven day record of food intake was kept for 97 children both at home and at the nursery school. The data showed a decreased intake per unit of body weight with an increase in age level.

In a study conducted by Vance (1932) at the Nursery School of Iowa State College, food preferences at the noon meal of a group of children were investigated. The number of children in the study was 44. A plate of food was served to the children which usually had four foods on it: meat or eggs, a sandwich, and two vegetables. Both the order of tasting and of finishing the food was recorded. Vance concluded that taste preference, which was defined as actual taste, smell, tactual and temperature qualities, visual appeal, and conditioning as a result of previous experience, was the largest single factor in determining the order of finishing the food.

Results of the study indicated that crisp bacon was tasted first the most frequent number of times. Average rank of finishing showed that meats, apples, sandwiches, fish, and eggs were finished in that order and were finished earlier than vegetables which were most frequently left



until last. It was suggested that sandwiches ranked high because they were eaten with the fingers. This was also suggested as a partial explanation of the reason raw vegetables were preferred over buttered or creamed vegetables. Concurring with Sweeney and Chatfield, Vance found that food items served separately were preferred over food combinations.

#### Food Consumption and Preference Studies

A study conducted by Lamb and Ling (1946) analyzed food consumed and food preferred by eight nursery school children in the Nursery School of the Department of Child Development in the Division of Home Economics of Texas Technological College. Five boys and three girls who ranged in age from two years, two months, to three years, seven months were the subjects. Daily records were kept for one week during three month intervals in a year. The food consumed and the affective concomitant during the food intake were recorded. The data for the affective concomitant were the emotional response of the child to each dish. There were five categories: very pleasant, pleasant, neutral, unpleasant, very unpleasant. The dishes were classified into 13 divisions: meats; fish; fowl; eggs; dairy products; vegetables; fruits; cereal products; food combinations such as soups, sandwiches, and salads; custards, puddings and gelatin desserts; concentrated sweets; pharmaceuticals such as cod liver oil and vitamin supplements; and miscellaneous food items.

Results showed that fish was unanimously and very well liked. Concentrated sweets and miscellaneous items, such as beverages, pickles, and gravies, were also very well liked. Gelatin desserts, custards, puddings, fowl, meats, and dairy products were well liked. Fruits, food combinations, pharmaceuticals, and eggs were liked. Cereal products were not enthusiastically received. The least preferred of all the food categories was vegetables.

The standards used for evaluation of nutrients consumed were those set up by the National Research Council. Results of the food consumption indicate that the children consumed comparatively small amounts of food. Milk and milk products consumption did not meet the recommended allowances. The consumption of potatoes was below the standard in six out of the eight cases while the tomatoes and citrus fruits consumed were above the standard. Meat consumption was well above the standard and the consumption of cereal products appeared to be adequate. The egg consumption was reported to be below the standard. The greatest deficiency in food consumption was the green and yellow vegetables. None of the subjects consumed adequate amounts of the other vegetables or fruit. The following conclusions were drawn:

By comparing the food consumption records gathered in this study with established standards it has been found that although the nutritive intake of a child may be generally adequate, his consumption of certain food groups can still fall short of the recommended amounts.

The preschool child has learned to like a variety of foods by the time he reaches the nursery school age and to regard eating as a pleasurable occupation.

As the preschool child grows older, intensely pleasant and unpleasant types of affective concomitant during food intake give way to more moderate types, and food consumption becomes a more matter-of-fact affair.

Preschool children of this locality have a tendency to like green and yellow vegetables least of all major food divisions, and to increase this lack of interest with age (Lamb and Ling, 1946, p. 219).

Dierks and Morse (1965) at the University of Minnesota investigated food habits and nutrient intakes of preschool children. Subjects were preschool children living in married student housing. There were 121 children in ages from two to six years old. Mothers of the children kept a three-day record of food intake. They were also asked to rate their child's diet as being good, fair, or poor. The dietary intakes of the children were calculated and divided into three groups. These groups were determined by the relation of intakes of the children to the Recommended Dietary Allowances. The diet was classified as good if it exceeded 75 percent of the Recommended Dietary Allowances; fair, if the percentage was between 50 and 74 percent; poor, if the percentage was less than 50. After the diets of the children were grouped, a comparison was made of the rating the mothers had given the children and their actual intake. Results indicated that 64 percent of the mothers had correctly classified the diets of their children. In five

cases the mothers rated the diets as poor when they actually were good.

Mothers listed the foods which the children especially liked, the foods they disliked but ate, and the foods they would not eat. Listed below are the foods in order of times mentioned in these three categories:

<u>Especially liked</u>	<u>Disliked but eaten</u>	<u>Would not eat</u>
Meat	Vegetables, specific	Vegetables, specific
Fruits	kinds	fic kinds:
Sweets	Vegetables in	Spinach
Cereals and	general	Squash
Cereal products	Meat	Asparagus
Vegetables, specific kinds (such as mild vegetables as beets and corn)	Potatoes	Sweet potatoes
Cheese and cottage cheese	Casseroles	Lima beans
Potatoes	Eggs	Vegetables in general
	Soups	Eggs
		Cheese or cottage cheese

The nutrient intake of the group considered as a whole met or exceeded the 1964 recommended allowances for calories, protein, vitamin A, thiamine, ascorbic acid, and calcium. Niacin intake was below the recommended amount, but the exact amount that is needed for the body has not been completely established since the amino acid tryptophan can be converted into niacin. Since the diets of the children were high in protein it was unlikely that there was a niacin shortage in reality. The iron intake of the children was below the standard; however, there was no history of anemia or iron medication for the children and

they appeared to be in good health. In the study there were a few sporadic instances in which there were low intakes of a few nutrients--especially ascorbic acid.

#### Studies Concerning Factors Influencing Food Intake

Dunshee (1931) conducted a study at the Institute of Child Welfare at the University of Minnesota in order to ascertain the factors which affect the amount and kind of foods which were eaten by the nursery school children. The study included 37 nursery school children and took place during the school lunch hour on consecutive days from January to July. Each day during the noon meal a recorder filled out records which included the kind and amount of food eaten, the attitude of the child toward the food and toward the people in the room, and whether he had to be helped or urged to eat. The children had no choice in the kind of food served to them.

The results indicated that there were no differences in the amounts of food that were consumed by the boys and the girls. The children who stayed the longest time at the table tended to eat less food. Interestingly enough it was reported that the children who had attended nursery school for the longest time tended to eat more food. No difference was found in the amount of food eaten and the bodily activity during the meal. The attitude of the children toward the recorder was most often matter-of-fact, but



sometimes tended to be demonstrative, as opposed to being antagonistic toward her. It was noted that the children sitting at the table with some recorders ate more food, some ate less, and with some recorders there was no difference in the amount of food consumed.

Four attitudes toward the food were reported. The category "eaten with relish" was reported 68 percent of the time. A "matter of course" attitude was reported 26.8 percent of the time. The attitude "disliked but ate" was reported 3.25 percent of the time and the food refused was reported 2.23 percent of the time. The intake of food increased when the children ate with relish and the amount of food eaten decreased as the dislike for food increased. The number of urgings and the number of times help was given were inversely related to the amount of food eaten. There was very little discrimination shown by the group among the vegetables, carbohydrates, and protein foods that were classified as being refused. Refusals of milk were recorded as least frequent while refusals of desserts were the most frequent. The "disliked but ate" attitude was most often assumed toward vegetables and least often assumed toward milk. Since the children were reported to "like" their food over 90 percent of the time, Dunshee assumed that the "liking of the food" was the important factor in the kind of food eaten.

A study of factors that influence the food intake of

preschool children was conducted by Justice, Mattson, and Schuck (1946) at the Purdue University Nursery School. This study was made up of two parts. Part one was concerned with what influence the style of food service used had on food intake in terms of calories and grams of protein consumed. Part two was concerned with the relationship of age, activity, rate of growth, size, sex, season, and type of menu to nutritive intake.

Part one was conducted at two different times of the year. It was first conducted in the late winter and early spring, and again in the autumn of the same year. Subjects used in the winter and spring were eight boys and six girls and those studied during the autumn were ten boys and four girls. Two styles of service, standard and self-service, were used. In the standard service the foods were weighed as they were served on the plate and the plate was set before the child's place before he came to lunch. Desserts were also weighed. Children were given second servings when they requested them. These second servings were weighed. Foods which were left on the plate were weighed and subtracted from the amount served which was also weighed. Four different menus were served during a week and were repeated in subsequent weeks. These same menus were repeated four to six times for each style of service. Each week a fifth menu was introduced for variety on which no data were recorded. The menus are listed below:

Menu I:      Liver Loaf  
               Green Beans  
               Lettuce Sandwich  
               Orange Milk  
               Ice Cream

Menu II:      Creamed Salmon  
                  Buttered Peas  
                  Baked Potato  
               Bread and Butter Sandwich  
                  Orange Milk  
                  Peaches and Custard

Menu III:    Scrambled Eggs  
                  Spinach  
                  Mashed Potatoes  
                  Toast  
               Apple      Milk  
               Chocolate Pudding

Menu IV:      Meat Balls  
                  Buttered Beets  
                  Peanut Butter Sandwich  
                  Celery      Milk  
                  Fruit      Jello

The menus used during self service were the same as were used in the standard service. During the self service the children placed the food on a Hanson scale to be weighed. They were told to take as much as they thought they could eat and were told that they could return for more. After the meal the plate waste was weighed.

The results of part one showed that both the protein and caloric intakes were higher for most of the children with self service in menus I, II, and III. More children had a higher caloric intake with menu IV under standard service; however, the protein intake was higher with self service.

Part two of the study was conducted in the fall of one year and the winter and spring of the following year. The subjects were four boys and three girls. Observations were made on the influence of age, activity, rate of growth, sex, and season on nutritive intakes. Results showed that the boys exceeded the girls in the nutritive intake over kilogram of body weight. The intakes in the winter and



spring averaged smaller than the intakes of the preceeding fall. Caloric consumption tended to be higher with menus containing meat than with meatless menus. No definite conclusions were indicated for the difference in rate of growth among the children in relation to nutritive intakes. Results were also inconclusive with respect to activity.

A study to investigate the relationship between food preferences of parents and their claims of food preferences of their children and the actual foods consumed by the children was conducted by Hodge (1963). The study, conducted in the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro, used the 12 boys and 12 girls who attended the nursery school and their parents as subjects.

Both parents of the children checked their own food preferences of 69 foods that were listed. Before the study began each also checked what he or she believed to be the preference of his or her child. The 69 foods used on the check sheets were each served three times at one of the noon meals to the children at the nursery school. The food preferences of the children were calculated by determining the percent of consumption by recording the plate waste. Results of the study indicated that there was no relationship between the food consumed by the child and the food preference of the parent. The rating of the parents of the foods thought to be preferences of their children was low

in relation to the food consumed by the children.

McCarthy (1935) at the University of Georgia investigated food aversions of a group of children in relation to food aversions in the family. The subjects were 48 children who were in the nursery school there or had previously attended the nursery school. The age range of the children was two years, no months, to seven years, six months, fourteen of whom were considered to be problem eaters by their mothers or by a history indicating eating problems in the nursery school. Data were secured through interviews with the mothers of the children. The study compared the kinds of food offered to the group of children with feeding problems and the group of non-feeding problems, foods liked, disliked, and refused by the two groups, the relation between age of the child and attitude toward food, the frequency of the same child and family food dislikes, and the frequencies of identical child-sibling and child-parent food aversions.

A list of 72 foods was used from which the mothers were to report which foods the children liked, which foods they were indifferent to, foods they disliked but ate, foods refused, or foods not offered to them. The foods were divided into the following categories: bread, cereals, desserts (excluding fruits), egg, meat, fruits, dairy products (excluding egg), and vegetables. Eighty-five percent of the foods were offered to the total group; eighty-four

percent were offered to the non-problem feeding group; and eighty-eight percent were offered to the group classed as feeding problems. The younger children in all three groups were offered less variety. More children in the problem group were offered chocolate milk and buttermilk. This same group was offered more cereal, desserts, and dairy food. It was suggested that perhaps the mothers of the feeding problem group used a wider variety of foods in an attempt to find those foods their children would eat. There was a lower percentage of liked foods among the problem group. There was a higher percentage of foods to which they were indifferent or refused to eat. The relation between age of the child and attitude toward food showed there was an indifference to food with the increasing of age. There was a tendency with increasing age away from strong aversions and strong likes. This was greatest with the feeding problem group. There seemed to be a tendency for food aversions of family members to influence the child and this tendency was much greater among children in the problem group. It appeared that food aversions were influenced more readily by siblings than by parents.

#### Self-Selection Studies

An experiment was conducted by Davis (1928) in which infants of weaning age were allowed to choose their own foods and the quantity of these foods. The choices from a wide range of natural food included 33 foods and in

addition salt which was served as a separate dish. The 33 foods were unmixed and unseasoned. The subjects were three infants of weaning age. Two infants selected their food for a period of six months. One infant selected his food for a year. The foods were divided into three meals a day and were placed before the infants.

The results showed that the infants were omnivorous. In eating they were governed not only by caloric needs, but they also showed definite preferences. These preferences changed from time to time but the quantity of food selection was sufficient for the body to maintain itself. Their digestion was apparently optimal and the nutritional results were reported to be good.

Another self-selection study was conducted by Prevey (1936) which took place during the noon meal in the nursery school at the Institute of Child Welfare at the University of Minnesota. The subjects studied were seven children who were three and four years of age.

The emphasis of the study was placed on self-selection without interference from the teacher. Fifty-four meals were served in all. Food was arranged on a side table from which the child selected his meal. Two cooked vegetables, two raw vegetables, potato or substitute, whole-wheat sandwiches, milk, and two desserts were the foods offered. As each child served himself no comment was given by the adult present. The food selected by each child and the

amount left uneaten was kept on a daily record.

Results of this study were compared with the routine service in the nursery school in which an adult served each child from a serving table. With the exception of potatoes the individual servings of food were larger in the study than the usual size served. The consumption of potato was less than in the routine serving. The children usually selected both the cooked vegetables and both of the desserts. Self-service appeared to be a means of increasing the consumption of these foods and it was suggested that the intake of milk might have been increased if it had been served in larger cups. It was also suggested that the small amount of milk selected could be compensated for by the fact that it was incorporated in the diet in other ways.

Fesmire (1965) conducted a study to determine what foods in addition to milk 24 three and four year old nursery school children would consume when permitted to select from 25 foods served as lunch. She further investigated the relationship between the amount of food which the children consumed at breakfast in their homes and the amount of food they selected and consumed for lunch at the nursery school. The foods served were familiar to the children. The foods were divided into four groups: meat and meat substitutes, vegetables, finger foods, and desserts. In addition bread was offered on the serving table. These foods were placed in random order each day. The children entered the room in



random order and selected their lunch cafeteria style. Each child ate at his regularly assigned place at a table. Milk was at each place as was customary.

The figures showing the amount of foods consumed by each child revealed that the desserts were selected the most number of times with meats and meat substitutes being second in the number of times selected and finger foods next while vegetables were last. Frequencies of foods selected and the percentages consumed of the food selected may be found in Appendix C.

The relationship between food selected and food consumed was apparent in the following manner:

Overall the correlations between the food selected and the food consumed were high.

The correlations indicated that the meat and meat substitute group were well liked. The correlation between the vegetables selected and consumed were high. There was also a high positive correlation of the finger food selected and consumed and this was also true for the desserts selected and consumed.

The meat and meat substitutes consumed were inversely related to bread in that the more meat and meat substitutes consumed by the children the less the amount of bread they consumed. The more desserts the children consumed the less amounts of other foods they selected. Surprisingly on the days when a large quantity of food was consumed a large

quantity of milk was also consumed.

Study Concerning Relationship of Food Habits,  
Home Backgrounds and Social Adjustment

At the Samuel S. Fels Research Institute Baldwin (1944) reported some findings from a study on the relationship of eating habits of children to their home backgrounds, and social adjustment. At that time the Fels Institute was engaged in longitudinal studies of a group of children. Seventy-six mothers were interviewed concerning the eating habits of their children at which time home visits were also made. In addition to this information general knowledge of the interviewer about the child was used to trace the subjects on three variables; appetite, finicalness, and table behavior. The following definitions were used:

. . . appetite: the amount of food eaten by the child, the consistency of his appetite, speed of eating, and frequency of food eaten between meals. The most important symptom was the amount of food eaten.

The finicalness of each child was rated in terms of his likes and dislikes of foods and his resistance to new foods, new methods of preparation, and to details of preparation. The rating of finicalness was primarily a measure of emotional attitude toward certain types of food rather than a measure of the amount of food eaten.

Table behavior was defined to include manners, distractability, conversation at the table, dawdling, spilling, cheek-packing. It represents the extent to which the child conformed to the socially accepted rules for behavior at the table (Baldwin, 1944, p. 74).

All three of the variables tended to be related; however, the table behavior and the appetite were more closely related to each other. One difference between them was

that good table behavior was more difficult to establish than good appetite. Practically all of the children with good table behavior had good appetites but many of the children with good appetites did not have good table behavior. In the homes of the children with good table manners discipline was more strict and coercive and the parents were less accepting than in the homes of children without good table manners. It was mentioned that the appetite of the children in the homes with good table behavior was probably due to the fact that in these homes the attitude toward food was that everyone should eat heartily. It is important to note that in the homes of the children with good appetite there was strict discipline and parental coercion but the children were also treated with acceptance and approval. From the nursery school records and home environment records the child with the good appetite was described as conforming, but socially poised and popular, active, unafraid, a leader, well adjusted to the nursery school and children his age. The child with good appetite and good table behavior was described as being not well adjusted at nursery school, conforming, but meek, socially insulated and shy, kind but not friendly to the children, too conforming and too repressive, and as having inhibited emotional expressiveness.

A lack of finicalness was found among children from homes in which they received an abundance of affection and



attention. No evidence was found that indicated that coercive discipline was related to finicalness or non-finicalness. Concerning the eating habits of the group the investigator indicated that unsatisfactory eating habits were the rule rather than the exception.

#### Study Concerning Food Habits and Behavior

A study conducted by Eliot (1933) at the Nursery Training School of Boston and the Cambridge Nursery School suggested that eating habits are related to behavior. Subjects for the study were 69 children between two years and no months and four years and no months. Forty-eight of the children attended the Nursery Training School in Boston and 21 were from the Cambridge Nursery School.

The behavior of the child was described using four aspects which were those of the body, the emotions, the attitudes, and the intellect. The traits which were concerned with physical development were defined as general habitual activity which was characterized by such overt behavior as walking, running, climbing, throwing, pushing, pulling, or anything in which bodily movement was involved. General health was also listed as a trait. This included the physical well-being of the child. This conclusion was made by the teacher through observing clear skin, good coloring, the lack of running ears, nose, and eyes, eyes that were bright, an eager expression, few absences for sickness, lack of tension, and a desire for activity.

Traits listed as having to do with intellectual development were quickness to learn, curiosity, imagining, perception, reasoning, manual skill, speech, and constructive tendencies. Traits which identified emotional development were affection, excitability, moodiness, fear, and anger. Attitude traits were divided into three categories: self-assertion, self-control, and happiness. Listed under self-assertion were: self-expression, desire for attention, friendliness, joy in the use of power, tenacity or the ability to stick to a task, and leadership. Under self-control were listed: regard for the rights of others and for authority, control of power in three areas, bodily, emotionally, and intellectually. Under happiness came joy, wonder, love of beauty, and adjustment.

Each child was rated on the 21 personality traits which were listed by the teachers in charge of the groups. A record was also made of the child's major problem in eating. Interviews were conducted with the parents of the children to record the behavior of the children in their homes and whether or not they experienced eating problems there. The problem in eating was defined as being finicky. A finicky eater was defined as:

(1) . . .a child who habitually . . .refuses to eat one or more kinds of food which are an important part of a normal wholesome diet; or (2) a child who is habitually extremely slow about eating all or nearly all wholesome food. . .or (3) a child who is habitually extremely irregular in his attack upon his food (Eliot, 1933, p. 424).

A non-finicky eater was defined as ". . .a child who, when well, eats at mealtime at least a small amount of whatever wholesome food is given him, in a manner which would indicate a desire to appease hunger (Eliot, 1933, p. 424)."

Analysis of the data revealed that 32 of the 69 children were finicky eaters. The traits listed lower for the finicky eater than for the non-finicky eater were: general health, regard for the rights of others and for authority, emotional control, intellectual control, joy, and adjustment. The finicky eaters rated higher in these traits: anger, excitability, moodiness, self-expression, desire for attention, and leadership.

#### Personality and Body Build

A study by Sheldon (1942) indicated that personality and body build were related. Two hundred college males were studied for a period of five years. The data secured were descriptive case reports of the morphology and temperament of the subjects. The three types of body build were: (1) endomorphy, (2) mesomorphy, and (3) ectomorphy. Definitions of these are listed below.

When endomorphy predominates, the digestive viscera are massive and highly developed, while the somatic structures are relatively weak and undeveloped. . . . When mesomorphy predominates, the somatic structures (bones, muscle, and connective tissue) are in the ascendancy. . . . The hallmark of mesomorphy is uprightness and sturdiness of structure, as the hallmark of endomorphy is softness and sphericity. . . . Ectomorphy means fragility, linearity, flatness of the chest, and delicacy throughout the body. . . . There is relatively slight development of both the

visceral and somatic structures. The ectomorph has long, slender, poorly muscled extremities with delicate, pipestem bones, and he has, relative to his mass, the greatest surface area and hence the greatest sensory exposure to the outside world (Sheldon, 1942, p. 8).

The case reports indicated that persons who are classified as endomorphy are likely to be viscerotonia; mesomorphy, somotonia; ectomorphy, cerebronic.

These temperaments were defined in the study. They are listed below.

Vicerotonia. . .in its extreme manifestation is characterized by general relaxation, love of comfort, socialbility, conviviality, gluttony for food, for people, and for affection. . .

Somatonia. . .is roughly a predominance of muscular activity and of vigorous bodily assertiveness. The motivational organization seems dominated by the soma. These people have vigor and push. . .

Cerebrotonia. . .is roughly a predominance of the element of restraint, inhibition, and of the desire for concealment, Cerebrontic people shrink away from sociality as from too strong a light (Eliot, 1942, p. 11).

### Behavior Studies

A compilation and interpretation of the records of five preschool children was done by Carter (1961). The subjects were two boys and three girls--two of whom were twins--who were included in a longitudinal study at the Nursery School (School of Home Economics) of the University of North Carolina at Greensboro. Emphasis was on the attributes and behavioral qualities of each child which made up patterns to give the child his individuality. Data used included information about the child's family

background; records concerning the child's activities, emotional, intellectual, and physical development that were recorded by teachers in the nursery school, his parents, and student observers. Changes in personality were largely a matter of degree. Concerning the results of the study Carter wrote "Of the five subjects studied, no child remained absolutely constant, the change in personality traits was always in the direction of trends that had been evident yet less pronounced at an earlier stage in his development (Carter, 1961, p. 139)."

A study was conducted by Stott (1962) at the Merrill-Palmer Institute to investigate the personality of the child at age four. The purpose was to discover whether or not by age four the personality in its basic structure was largely set. The study was conducted over a period of nine years using 63 children who were in their fourth year--from three years, seven months to four years, six months. Records were kept in the form of check lists of short description of their. . ."social behavior and personal attributes, both psychological and physical". . . (Stott, 1962, p. 288). Fourteen behavior factors were measured: personal responsibility versus irresponsibility impulsive-ness; assertiveness versus apprehensive withdrawal; independence versus dependence; sociocentricity versus egocentricity; need for belonging versus individualistic self-sufficiency; insecurity versus relaxed spontaneity; isolate



egocentricity versus social integrativeness; social dominance versus withdrawal; compulsive dominance versus social adaptability; social ease versus shy unfriendliness; kindness; personal instability versus stability and inner control; self reliance versus lack of staying power.

Categorized under each behavior trait or cluster there were behavior items. It was determined that certain items would occur together and make up a cluster. An example of this interrelation follows for Factor III which represents independence versus dependence.

It [the positive aspect of factor III] describes the child who is imaginative, with ideas of his own about what to do, even in difficult situations. He therefore would not be the one to go to the adult for help but would make the most of the situation on his own. New and unfamiliar situations seem to have an appeal to him and constitute a challenge to his resourcefulness. He is also likely to be attractive physically as well as personally (p. 295).

The negative aspect describes. . .the child who is helpless if left to his own devices in play, and so is likely to copy after others and follow their ideas, or to appeal to the adult for help and support. He is inclined to feel inadequate and lonely, and as he tries to play with others he often finds himself in distress and cries in frustration (p. 295).

In ten of the traits found in the four year olds there was sufficient correspondence with traits that have been associated with later childhood and maturity by other investigators. This gave support to the view that basic personality structure is apparently determined to a great extent in early childhood. Stott pointed out that environmental conditions and inherited temperamental predispositions

were important factors to keep in mind in discussing personality. He stated that the extent to which personality was determined in early childhood should be investigated by longitudinal studies.

#### Summary of the Review of Literature

The importance of establishing good food habits in the young child has been emphasized. Many factors were mentioned that influence the amount and kinds of food that are eaten by the young child. All of the studies concerning kinds of food eaten were in agreement that the amount of vegetables consumed was the smallest of all the food groups except in the study of Davis (1928) in which the experts were omnivorous in their food selections. In the study (Fesmire, 1965) where the children were able to select their food and the results were reported by food groups, the selection of vegetables was below all other food groups. It was generally true that desserts were a favorite with the preschool children. An exception of dessert being a favorite was in the study by Dunshee (1931) in which refusals of dessert by the children were the most prevalent. Meat and meat substitutes appeared to be well liked by the children (Hahn and Steibeling, 1938; Lamb and Ling, 1946; Fesmire, 1965). In two studies it was indicated that meats were the favorite food group with the children. The one exception was the study by Lamb and Ling (1946) in which a division was indicated between fish and meat. Fish was

unanimously and well liked whereas meat was further down on the list. It was interesting to note in the study by Fesmire (1965) that of all the six meats and meat substitutes offered fish was selected the least number of times; however, a higher percentage of it was consumed of the amount selected than was true for the other five.

Investigations were reported which dealt with the relationship of the food preference of the parents to the food preferences of the child (McCarthy, 1935; Hodge, 1963). In the study by Hodge no relationship was found as opposed to the findings reported from the study by McCarthy in which a relationship existed between food aversions of the family and the children studied, especially the problem eaters. In McCarthy's study the siblings were also included and their influence was greater than parental influence.

Dunshee (1931) reported the following factors which influenced an increase in the amount of food consumed: increase in time of attendance at nursery school; decrease in number of urgings and times helped; liking for food; relaxed atmosphere; and, the mechanical ease of eating. In the study by Baldwin (1944) appetite was associated with moderately coercive to extremely coercive control of the child by the parents. A lack of finicalness was associated with children from homes in which they received an abundance of affection and attention.

A relationship between personality and eating habits

was indicated by Eliot (1935). Children who were identified as non-finicky eaters rated higher in these personality traits than finicky eaters: general health, regard for the rights of others and for authority, emotional control, joy, and adjustment. Finicky eaters rated higher in these traits: anger, excitability, moodiness, self-expression, desire for attention, and leadership.

A study by Sheldon (1942) indicated a relationship between body build and personality. Carter (1962) presented characteristics of behavior and trends of behavior in five preschool children. Establishment of personality in the preschool years was indicated by Stott (1962).

### CHAPTER III

#### PROCEDURE

The purpose of the present investigation was to study the foods selected and the foods consumed and to determine if there was an interrelationship with the behavior exhibited by five preschoolers. Comparisons were made between each child's choice and consumption of food and amount of activity, vigor of activity, sensitivity to stimulation, reactivity, alertness, characteristic mien, characteristic mood, stability of mood, and frustration tolerance exhibited by each child. Five children enrolled in the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro were studied and described as cases A, B, C, D, and E, and were presented in case study form.

#### Selection of the Cases

This study took place at the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro. The nursery school was a laboratory for students in child development, related areas in Home Economics, as well as in psychology, education, and sociology. There were 24 children enrolled in the nursery school: 12 of whom were boys and 12 of whom were girls.

For the present study the investigator decided to use



only the children who were present every day during the period of time in which the children were served cafeteria style. After the food selection study was completed, it was noted that only five children had been present every day. It was a matter of coincidence that those five children who had been present every day were girls. Three were in the four year old group at the nursery school and two were in the three year old group. Case studies developed on the five girls included the foods each selected and consumed during 20 days of self-selection of food during the noon meal, information from family case history on file in the nursery school, and behavior profiles filled out by five members of the nursery school staff and five student teachers who had known the children for at least one semester.

#### Limitations of the Study

The children in the study were five children who attended the Nursery School (School of Home Economics) of the University of North Carolina at Greensboro. The criterion for admission to the nursery school was based on the order of application by the parents. The enrollment therefore presented a bias for the group. Parents would have by necessity been residents of Greensboro for four years. The nursery school hours were from nine to twelve-thirty so in most instances working mothers were precluded from enrolling their children. The cost of tuition was such that the

children enrolled were from families in the upper middle and upper economic classifications. The economic classification presented another limitation in that the children from lower economic classifications might differ in food likes and dislikes and in food habits. Limitations were presented in that the study group was small and that all of the children in the group were girls.

Another limitation was that of not being able to compare the daily nutrient intake of the subjects with the Recommended Dietary Allowances which indicate the daily nutrient intakes judged to be adequate for maintenance of good nutrition (Recommended Dietary Allowances, 1964, v). This limitation was due to having quantitative measurement of food intake only at the noon meal. Nutritive intakes at the noon meal were presented in the percentages they were of the Recommended Dietary Allowances. A limitation in determining the nutrient consumption was the inability to obtain the exact amount of added seasonings, however small the amount was.

Throughout the full four weeks period of research, parents were asked not to discuss foods nor the noon meal at the nursery school with their nursery schooler. It was impossible to assess how well parents adhered to this request, therefore it could be considered a limitation. It was also possible and probable that the children had already acquired food prejudices as a result of previous

learning experiences in the family or in the nursery school with all five of the girls having experienced at least one semester in the nursery school.

#### Procedure Used in the Study

Data for this part of the study were collected in conjunction with Fesmire (1965). The procedures used during the food study were specified by Fesmire.

A two day pre-test was conducted to determine the best procedure to use in serving the foods, recording the plate waste, and bringing children in the dining room. The pre-test which was carried out one week prior to the study allowed for changes that needed to be made in the plan of the study.

The pre-test gave the children time to adjust to the new way in which lunch was served. Prior to the study the children had been seated at a table and a plate that was already served was before them. For the two day pre-test the children eagerly adapted to the change in routine. The children were told to indicate to the server the foods they wanted and that they could return to the serving table for more of any foods. The time required to serve the 24 children was determined by a stop watch. In the second day of the pre-test the serving was finished in 12 minutes which was the average time of serving throughout the study.

The noon meal in the nursery school was served cafeteria style for twenty consecutive days. Two tables

were set up in the room from which the food was served to the children. The food was served each day by the same adults who were instructed as to the portions to serve. The servers were told not to ask a child what he wanted to eat but to serve only the foods the child voluntarily selected.

The same teacher or graduate student sat at a given table with the children each day but did not eat with them because she was recording the food selected by the children. The adults were given instructions not to encourage or discourage the children to eat nor were they to use the words "food" or "eat," but they were told to say when necessary, "You may ask for more of anything," or, "This is lunch time, not play time." The children ate at the same places they did in the meal routine prior to the study. A tinker toy with each child's name attached was at his place and when the child had finished his meal he placed the tinker toy which had his name on it in his plate. The plate and the milk glass were left at the table so that the researcher could measure the plate waste in determining the actual food consumption.

The foods used were divided into four groups: meat and meat substitutes, vegetables, finger foods, and dessert. Bread was also served. The order in which the foods were placed on the serving table was randomized. Milk was the only food not placed in random order but was previously set

at each child's place. The order was randomized by taking four cards from a deck. On each of the four cards a different food group was written. The cards were then shuffled, cut five times, and dealt face up. The foods were placed in the same order that the card appeared in the deck. This same procedure was used to randomize the order in which the children entered the room for lunch. The foods were all simply prepared with no food combinations used. A small amount of margarine and butter was added to some foods for seasoning. Meat and meat substitutes, vegetables, and fruit were served in bite size pieces while finger foods were served in small wedges or strips. The food was prepared by the nursery school cook and a college assistant who carried out the instructions given by persons directing the study.

Each child indicated his selection of foods to the adult serving. Each child could return for more food as often as he wanted to and at anytime during the lunch period which lasted until the last child finished and willingly left the dining room.

The foods used in this study and the portions in which they were used are listed below:

Meat or Meat Substitute

Roast Beef-----	One Tablespoon
Roast Chicken-----	One Tablespoon
Broiled Flounder-----	One Tablespoon
Beef Pattie-----	One Tablespoon
Cheese-----	One-half Slice
Boiled Egg-----	One-half



## Vegetables

Broccoli-----	One	Tablespoon
Green Beans-----	One	Tablespoon
Green Peas-----	One	Tablespoon
Buttered Carrots-----	One	Tablespoon
Diced and Buttered Potato----	One	Tablespoon
Buttered Beets-----	One	Tablespoon

## Finger Foods

Carrot Sticks-----	Three three-inch thin strips
Celery Sticks-----	Three three-inch thin strips
Lettuce-----	One small piece
Tomato Wedge-----	One-sixth of one tomato
Raw Cauliflower-----	One small piece
Apple Wedge-----	One-sixth of one apple

## Desserts

Sliced Peaches-----One Tablespoon  
Pineapple Chunks-----Three Chunks  
Applesauce-----One Tablespoon  
Jello-----Three Tablespoons  
Pear Chips-----One Tablespoon  
Raisins-----One Tablespoon

White Bread-----One-fourth Slice  
Milk-----One-half Cup

### Data Collection During the Food Study

The amount of food consumed by the children was determined by weighing the plate waste. The plate waste was subtracted from the amount of food selected. The amount of milk consumed was determined in the same manner.

### Data Analysis of the Food Selected and Consumed

The number of times each food was selected was totalled for each child and the patterns of daily food selection were indicated. The amount of each food consumed was totalled in grams for each child in order to

determine nutrients consumed. Nutrients were determined by the use of the United States Department of Agriculture Handbook number eight (1963).

### Behavior Profiles

Behavior profiles were filled out by five staff members in the nursery school who had graduate training in the area of Child Development with two holding Master of Science degrees and by five student teachers in the nursery school who were undergraduate majors in Child Development. All of the individuals who filled out the profiles knew the children for at least one semester. The profile used was developed at the Merrill-Palmer Institute. Listed on the profile were nine behavior tendencies with a horizontal line beside each which represented a trait continuum. A five point scale was used with the most desirable position being near the middle of the continuum. Either end of the continuum represented undesirable extremes in behavior (Stott, 1955, 36). Before the profile was filled out the ten individuals mentioned were given a list of definitions concerning the three degrees of each behavior tendency.

### Data Collection from Records on File in the Nursery School

Information concerning the family background of the child and his adjustment at nursery school was taken from the records on file in the nursery school. In obtaining information for compiling the case studies the following

records in the nursery school were used: family background records, parent conference records, height-weight records, health records by doctors of the subjects, and records of observers.

## CHAPTER IV

### RESULTS

Results from this study are presented in case study form. The five cases were all girls. They were in attendance at the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro. Data used for this study included information from family background records on file in the nursery school, information from the food research study on selection and consumption of food (Fesmire, 1965), and from behavior profiles checked by five staff members and five student teachers majoring in Child Development. The five cases are identified by the letters A, B, C, D, and E, and will be so ordered in this chapter.

#### Case A

Having been born on December 19, 1960, at the time of the study A was four years, one month old. She weighed 39 pounds and her height was 41-3/4 inches at the end of the semester. An evaluation of her height and weight by using a weight-height ranges chart published by Mead Johnson indicated that she was near average in both height and weight. A was described by her physician as having good health. Physically A was described in a nursery school progress report as a slender blond with blue eyes and a

very small mouth and nose.

When A was born, her father was 29 and her mother was 28 years of age. Her father was born and reared in North Carolina. He studied accounting while attending a business college and a division of a liberal arts college. At the time of the study he was a sales manager for a department store and was active in church and civic affairs.

The mother of A was also born and reared in North Carolina. She held a Master of Science in Home Economics degree with a major in Child Development. Prior to the birth of A she had held positions as a research assistant in a land-grant college, and served as director and teacher in a kindergarten. She listed her civic activities as including church, school, and social organizations.

A's older brother was born in 1956, and her younger sister was born in 1964. The family lived in the house where they had been living since A was ten months old. As a three year old she had never been separated from her parents for a long period of time.

A's appetite was described by her mother as "fair." She ate with her family and could completely feed herself. No food allergies were reported and her favorite foods were listed as meats, rice, milk, ice cream, green beans, and cheese. The foods she especially disliked were canned fruits and many vegetables. At the time of the study A was given a tablet of the vitamin supplement, Super-Kaps, daily.



When asked if there was a feeding problem the mother commented that she wished A would eat a larger variety of foods but that she did not consider this to be a problem and no issue was made about the matter.

Her mother commented that she attempted to get A to bed by eight o'clock and that A usually had 12 hours of sleep. A's attitude toward bedtime was described as dawdling as long as possible and her activities before going to bed were listed as having a bath, dressing, dressing dolls, sometimes a story, prayers, drink of milk, and hunting for animals with which she slept. She had a room of her own where she slept alone. She did not have a daily nap; however, she had a rest period after lunch at which time she looked at books and played quietly in her room. A's sleep was described as sound.

Elimination training for both bowel and bladder control was started at 19 months. Her response to training was good and control was established in three months for both night and day. A stated her own need for urination and bowel movement and her mother commented that only infrequently, when she was so busy playing, did she forget.

The things A could do for herself were undress, wash hands, use the toilet, and take off her wraps. With partial help she could dress, wash her face, put on her wraps, put toys away, and brush her teeth.

Indoors A played in the family room, her bedroom, and

the kitchen. Her favorite indoor toys and equipment were dress-up clothing, dolls, books, pots, pan, and blocks. Outdoors A played in the swings, sand box, on the tricycles in the driveway, and in the yard near the house. She was sometimes happy playing alone but preferred the companionship of children rather than adults.

A's most frequent playmates were her siblings and girls age three with whom she was reported to play well. Her favorite activity was make-believe or dramatic play. A spent approximately two hours a day with her father. Most of her play time was spent with her mother and her brother when he was home. Activities jointly enjoyed by the family were listed as: reading, listening to music, routines, excursions to parks, marketing, nature walks, picnics, television, and swimming. A enjoyed stories a great deal and her mother usually read to her.

When asked what she liked most about her child, her mother commented, "The way A is filled with excitement when she tells something." The pleasures enjoyed most frequently by the family were picnics, cook-outs, and vacations together. Music experiences provided for A included having her own record player in addition to having a number of records to play on the family record player. She spent approximately two hours a day watching children's television programs. Her mother wrote that A was not dependent on adult direction and suggestion for play activities. She had no pets but

did have an imaginary playmate with whom she occasionally played.

The parents' methods of control of A were listed as ignoring, praising, suggesting, reasoning, preparing her in advance, and speaking in a firm voice. The most helpful method was offering choices. Diverting was also used but was described by the mother as being the least successful method and, therefore, it was used only temporarily. Her mother described her own method of disciplining of A as easy-going while her father described his as reasonably firm. The usual reaction of A to discipline was being defiant and sulking which her mother felt was due to the behavior which precipitated the need for discipline rather than the discipline itself.

A's behavior traits were listed by her mother as being aggressive sometimes, well-adjusted, cheerful, happy, affectionate, and becoming angry with her brother. A has shown a fear of dogs and flying insects. In a progress report written by her teacher, A was described as being sparkling, bubbly, and intellectually a very bright child. She made her wants known and was capable of taking care of her needs and was reported to have much imagination. A was trusting of adults and apparently preferred the companionship of adults in the nursery school. She seemed to hold herself aloof from the three year olds in her group and was described as being contemptuous with all except a few

children. She preferred playing with one of the four year old girls. A frequently corrected the other children when they made a mistake and showed an unwillingness to take a role of follower. The nursery school teacher indicated A's need for social growth as well as developing a longer attention span which included staying with one activity for a longer time.

In a parent conference the mother of A reported that she was aware of A's pattern of going from one activity to another without really becoming involved. The teacher pointed out the need for social growth and the mother responded that she felt A was not sure of herself with her own peer group. The mother also felt that the position as a middle child affected A's social development and said that A liked to tell other children what to do and became upset when they did not follow her directions.

Results of the profile are shown in B in the appendix with definitions of terms used shown in A. Results of the behavior profiles filled out by the five nursery school staff members indicated that for the nine behavior tendencies, A was within one degree of the most desirable position on the continuum. The two exceptions were that one staff member gave A an extremely high rating of impetuous under vigor of activity while another felt she was tensely alert. The nine aspects will be dealt with separately in the following description. Under activity three

staff members rated her as between active and hyperactive while two rated her as active. Her vigor of activity was rated as moderate by two staff members, between moderate and impetuous by two, and impetuous by one. A's sensitivity to stimulation was rated as being between moderately sensitive and hair trigger by three staff members and as moderately sensitive by two. Four staff members gave her a rating of responsive while one rated her between responsive and violent. One staff member rated her as tensely alert in alertness while two rated her between attentive outwardly oriented and tensely alert and two gave the rating of attentive outwardly oriented. Her characteristic mien was rated between serious, grave and pleasant by one staff member while two rated her as pleasant and two as being between pleasant and impish. Three staff members gave her a rating of comfortable, contented, in characteristic mood while one rated her between indifferent and comfortable with one staff member rating her between comfortable, contented and angry, hostile. Four staff members rated her stability of mood as moderately stable while one gave her a rating between invariable and moderately stable. Her frustration tolerance was rated as being moderately disturbed while one gave her a rating between imperturbable and moderately disturbed.

In summary A's behavior as described on behavior profiles checked by five nursery school staff members was



as follows for each of the nine behavior tendencies:  
activity, active and between active and hyperactive; vigor of activity, moderate to impetuous; sensitivity to stimulation, moderately sensitive to between moderately sensitive and hair trigger; reactivity, responsive to between responsive and violent; alertness, attentive outwardly oriented to tensely alert; characteristic mien, between serious grave and pleasant to between pleasant and impish; characteristic mood, between indifferent and comfortable to between comfortable and angry; stability of mood, between invariable and moderately stable to moderately stable; frustration tolerance, between imperturbable and moderately disturbed to moderately disturbed.

There was considerable agreement among the ratings given by the staff members and the student teachers. Two exceptions were that she was given a rating of hair trigger in sensitivity to stimulation by one student teacher and she was rated by one student teacher as being violent in reactivity.

With the family background of A and her behavior having been described, attention will now be focused on the results of the data collected from lunch check sheets. A consumed the following percentages of nutrients at the noon meal in comparison to the standards set up for children three to six years of age by the National Research Council on Recommended Dietary Allowances: calcium, 40.1 per cent;

vitamin A, 38.8 per cent; riboflavin, 34.4 per cent; protein, 31.8 per cent; calories, 13.0 per cent; thiamine, 10.2 per cent; niacin, 7.7 per cent; iron, 5.0 per cent; and ascorbic acid, 4.4 per cent.

Percentages for the first four nutrients can be described as high in that the Recommended Dietary Allowances were set up for a day's intake, whereas the percentages used here refer only to one meal.

A's high percentage of calcium consumed can be seen in the high number of times she selected cheese. Foods in order of times selection for the 20 days were: cheese (31), milk (23), carrot strips (17), chicken (11), bread (nine), lettuce (eight), roast beef (seven), jello, apple wedges, and celery sticks (six each), green beans (five), tomato wedges (three), pear chips, raw cauliflower, broiled flounder, beef pattie, and boiled egg (one each). A's selection pattern showed that there were three foods she selected between 17 and 19 days. She selected seven foods between six and ten days and seven foods between one and five days while there were nine foods she never selected. She consumed approximately 86.5 per cent of the foods she selected.

In summary parental understanding and optimistic discipline in which wide limits were set were factors in A's learning to judge her own capacities. She consumed 86.5 per cent of all the food she selected during the 20 noon meals of the food study. There were disagreements

among the staff in rating A's characteristic mien in that she was described both as pleasant and as tending to be impish. Investigation of her records on file in the nursery school revealed that she was described as pleasant and friendly with adults, but aloof and unfriendly toward the children.

#### Case B

Born in Greensboro on June 25, 1960, B was four years, seven months of age at the beginning of the food research study and was in her second year at the nursery school. B was described by her teacher as having auburn hair and wide set, expressive brown eyes. When measured at the end of the semester her height was 41 1/2 inches and her weight was 39 pounds and was evaluated as near average by using a weight-height ranges chart. Her health was described by her physician as good.

When B was born her father was 36 and her mother was 35 years of age. Her father was born in Texas and was reared in Texas and North Carolina. He was graduated from a university with a professional degree and at the time of the study was practicing his profession. B's mother was born and reared in North Carolina. She was graduated from the same university as her husband with a comparable degree and at the time of the study was practicing her profession part-time in partnership with her husband. Both parents were active in church and civic affairs. Other family

members were a brother who was 12 years of age at the time of the study and one sister eight and another sister six years of age. During the time their mother was away from home the children were kept by a housekeeper and nurse who was 56 years of age and who also accompanied the family on vacations. B had not been separated from her parents for a long period of time.

Her appetite was described as fair and B ate meals with her family and fed herself completely. Her favorite foods at three years of age were listed as corn, milk, pork and beans, spaghetti, cereal, fried chicken, fruits, bread, and desserts. At four years of age just four of the above were listed as favorite which were bread, cereals, milk, and desserts. Practically all vegetables were listed as disliked foods with her mother indicating that this dislike for vegetables was stronger at four years than it had been at three. Her mother tried to encourage B to eat a variety of foods by withholding her dessert if she did not eat several foods. B's mother stated that because B appeared to be healthy and vigorous she was not concerned about B's diet.

B's attitude at bedtime was described by her mother as "fine" and her sleep was sound with B having 11 hours of sleep at night. Activities before going to bed were having a bath, having a story read, saying a prayer, having a drink of water, and being kissed good-night. B slept alone

but shared a room with one of her sisters. B had a daily nap of approximately two hours.

Little training was reported to have been involved in elimination control with B training herself at two and one-half years of age. Control was completely established for bowel control at three years of age. Bladder control was completely established during the day, but not at night, by four years of age.

Those things which B could do for herself at three years of age were to wash her face and hands, bathe herself, use the toilet, put her toys away, and brush her teeth. At four years of age the following things were added: put on and take off wraps, dress herself, and combing her hair. At three years of age her mother commented that B had to be directed to do those things which she was capable of doing independently except in using the toilet.

Many activities were listed as being enjoyed by B and many were listed as being enjoyed by the family. At three years of age her favorite activities were to be read to, to sing and dance, and to play any game with children; while at four her favorite activities were water play and going to the grocery store. Her mother listed that favorite indoor toys were dolls, puzzles, and paint, and that B played "all over the house." Outdoors she played in her backyard and a neighbor's yard with her favorite outdoor equipment being swings, tricycles, a slide, and a swimming pool.



Music experiences provided for B included a radio, records, a piano which she sometimes played by herself, a violin which her brother played, and singing. B watched children's programs from one to two hours a day on television. Activities jointly engaged in by members of the family were listed as reading, listening to music, excursions to parks, the airport, marketing, picnics, stories, cooking, helping with household duties, visits to grandparents, and watching television. Pleasures enjoyed most by the family were listed as swimming, reading, picnics, and music.

B's most frequent playmates were her sisters and other girls with whom her mother reported she played well. She preferred playing with children rather than adults. B spent approximately two hours a day with her father and six or more with her mother. At three years of age her mother wrote that what she enjoyed most about this child was her sweetness, vigor, and enthusiasm, while at four years of age her mother enjoyed most B's exuberance, imagination, and her strong sense of dramatics.

Both at three years of age and at four B's parents stated their methods of control as praising, offering choices, and speaking in a firm voice. At three years of age spanking and depriving of pleasure were also stated as means of control while at four years ignoring, scolding, offering choices and diverting were stated. For both age

levels isolating was a very helpful method and at three preparing the child in advance and speaking in a firm voice were very helpful. Both parents' discipline of B was described as reasonably firm when she was three years of age while at four years her father's discipline was easy going with her mother's discipline remaining reasonably firm. B's reaction to discipline was being sorry, crying, and being more obedient.

Behavior traits of B at both ages were described by her mother as being well-adjusted, cheerful, trustful, happy, and affectionate with courageous being listed at three years. Thumb-sucking by B was listed as something the mother needed help with at three years of age. The only fear shown by B was that of strange dogs.

At the end of her first year in nursery school B was described in a progress report written by her teacher as being an accurate judge of her ability and of knowing exactly what she wanted. B participated in group routines and activities with ease. She frequently contributed to dramatic play and spent much time with manipulative materials such as clay and puzzles for which she had excellent small muscle coordination. She enjoyed books and music with her favorite outdoor equipment being wheel toys and the sand box. B showed a preference for sedentary activity; however, she was agile. Her teacher stated that B should be given continuous opportunity for active outdoor play.

B was not dependent on her teachers and sought their help only when she was attempting to do a task too difficult, or when she wanted them to get some play material out for her, or when others did not respect her rights. The teacher commented that B had a strong sense of the rights of others and of her own. Continued interaction with her peers was stated as that which should help her overcome her frustration when her rights were being infringed on. She understood and accepted limits imposed on her and moved easily and freely within them conforming to demands simply by giving her adequate explanations. Her teacher continued that B's ability to accept limits should not be overtaxed by too many regulations because she was at a stage of developing independence and too many adults demands would interfere. In a parent conference concerning the progress report given above, B's mother expressed concern that the teacher cautioned against adults expecting too much of B. The mother reported that she generally felt that her demands on her children were too high but that she only wanted them to do what they were capable of doing. B's mother felt that B was above average in intelligence, capable of doing what was expected of her, and was a "delightful joy." The teacher concluded the progress report at the end of B's first year in nursery school by stating that B was responsive, alert, and conversing.

At the end of her second year in nursery school B's

teacher indicated that her physical, emotional, social, and mental development progressed throughout the year. Her relationship with adults and children in the nursery school was described as comfortable, with her interpersonal relationships being described as strong asset. She enjoyed friendships with a variety of children without having formed exclusive attachment to anyone. She was sensitive to the needs of other children and her own needs and was sensitive to being left out. B was described as being dependable in performing tasks that were assigned or voluntarily undertaken. B appeared to be secure with herself, her family, and the children and teachers at the nursery school. Her pleasant outgoing personality was indicated as a strong asset by B's teachers.

Results of the behavior profile filled out by the teachers and student teachers in the nursery school may be seen in Appendix B. On the profile there was agreement among the staff members that B's amount of activity was active with all five giving her this rating. All five rated her vigor of activity as moderate. In sensitivity to stimulation four staff members rated her as moderately sensitive with one rating her between moderately sensitive to hair trigger. She was rated by four staff members as responsive in reactivity with one rating her between sluggish in reaction and responsive. In alertness she was rated by four staff members as attentive outwardly oriented

while one rated her between attentive outwardly oriented and tensely alert. Her characteristic mien was rated as pleasant by four staff members and as impish by one. All five rated her characteristic mood as comfortable, contented. Under stability of mood three staff members rated her as moderately stable, one rated her between invariable and moderately stable, and one rated her between moderately stable and extremely cycloid. Three staff members rated her as moderately disturbed under frustration tolerance with one rating her between imperturbable and moderately disturbed and one between moderately disturbed and frustration extremely disrupting.

There was much agreement among the ratings given B by the staff members and the student teacher. Three exceptions were in that she was rated as hair trigger in sensitivity by one student, violent in reactivity by one student, and as tensely alert in alertness by two students.

In summary B can be described on the basis of the ratings given by the staff members as active (five ratings), moderate in vigor of activity (five ratings), moderately sensitive in sensitivity to stimulation (four ratings), attentive outwardly oriented in alertness (four ratings), pleasant in her characteristic mien (four ratings), and comfortable, contented in her characteristic mood (five ratings). All of the degrees of behavior tendencies listed above were at the most desirable position on the behavior



tendency continuum. The two of the nine tendencies which remain to be discussed are stability of mood and frustration tolerance. She was rated by three staff members as moderately stable under stability of mood with one rating her between moderately stable and invariable and one rating her between moderately stable and extremely cycloid. In frustration tolerance she received three ratings of moderately disturbed, one of being between moderately disturbed and imperturbable, and one between moderately disturbed and frustration extremely disrupting.

Overall it can be seen that B was very near the optimum position on the continuum in the behavior characteristics that were rated. Of the 45 possible ratings by staff members she was rated as being at an extreme (impish in characteristic mien) only once.

During the food selection study B consumed at the noon meal the following percentages of nutrients in relation to the Recommended Dietary Allowances: protein, 28.8 per cent; calories, 13.6 per cent; thiamine, 12.5 per cent; niacin, 11.2 per cent; iron, 10.4 per cent; riboflavin, 9.6 per cent; ascorbic acid, 7.8 per cent; vitamin A, 7.2 per cent; and, calcium, 5.2 per cent. Her selection pattern indicated that there were eight foods she selected from 18 to 20 days, one food between six and ten days, four foods between one and five days, and 13 foods which she never selected. The foods she selected and the number of times selected were as

follows: jello (41), broiled flounder (40), apple sauce (32), white bread (29), sliced peaches (28), pineapple chunks and pear chips (25 each), milk (20), raisins (seven), beef pattie and apple wedge (three each), and, roast beef and buttered beets (one each). She consumed approximately 66.5 per cent of the foods she selected.

The behavior profile of B indicated that she approximated the desired behavior in all of the behavior tendencies. B's parents cooperated with the nursery school staff concerning B's development and seemed to understand B and in doing so exhibited acceptable methods of discipline. Prior to entering nursery school B had much play experience with other children. B's stability was seen in selecting the same foods nearly every day. Her selection pattern pointed to an indication that children develop food prejudices early. At three years of age prior to her entering nursery school her mother listed desserts and breads as her favorite foods. She chose these foods every day during the food study, and she chose a comparatively large quantity of each of them. It would have been quite possible to predict from day to day during the study what foods B would select which is indicative of B's behavior. Analysis of B's nutrient intake demonstrated the importance of encouraging children to eat a variety of food in order to get nourishment in that B consumed small percentages of nutrients in relation to the Recommended Dietary Allowances.

Case C

Having been born on March 13, 1961, C was three years and 11 months of age at the beginning of the study. Her weight of 33 1/2 pounds and her height of 39 3/4 inches was evaluated as near average by using a weight-height ranges chart. C was described by her teacher as being a beautiful child with a graceful body, olive skin, very blond curly hair, and expressive blue eyes.

When C was born her mother was 27 and her father was 30 years of age. Her father was born and reared in North Carolina and received a professional degree from a university. At the time of the study he was practicing his profession and was active in civic and church affairs. C's mother was also born and reared in North Carolina and graduated with a Master's of Arts degree from the same university that her husband did. Prior to the birth of C she taught in primary school. Her mother was active in civic and church affairs.

C was in her second semester of her first year in nursery school at the time of the study. Prior to entering nursery school she had been in the toddlers group which was a part of the program at the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro. She was in attendance in the toddler group from the time she was 18 months until she aged out of the group around 30 months. In the toddlers group the children came

two days a week for an hour each time during which times parents' meetings were conducted in another part of the building. The parents joined the meetings as soon as their children felt secure among the other toddlers and the teachers.

C's appetite was described by her mother as good with her favorite foods being hot dogs and cottage cheese. No disliked foods were listed at three and a half years but at two and a half she disliked lettuce and other raw vegetables. C was given 6 cc's of the vitamin supplement Tri Vi Flor daily.

C had a room of her own and slept alone. Her sleep was described as sound throughout the records filled out by her mother with her attitudes toward going to bed varying with different age levels which were "sleepy" at 18 months, "wide awake" at two and a half, and "reluctant" at three and a half. Usual activities before going to bed were having a bath, having a story read, and drinking apple juice. She had a daily nap of from one to one and a half hours at three and a half years of age.

Training for both bowel and bladder control were begun at two years of age with response to training being good. By three and a half she stated her need for both elimination and a bowel movement. By two and a half C could do the following things by herself: undress, wash her hands, and use the toilet for elimination and a bowel

movement, with putting her toys away added at three and a half.

At 18 months her mother stated that C's favorite indoor toys and equipment were pots, pans, balls, beads, and blocks while at two and a half years she preferred her rocking horse and puzzles and at three and a half her favorite toys were her rocking horse and kitchen equipment. Indoors she played in the den and outdoors she played in her backyard with her favorite outdoor toys and equipment being wheel toys, a sand box, and swings. Her favorite activities at 18 months were stated by her mother as climbing and bathing while at two and a half and at three and a half riding wheel toys were favorites along with swinging at two and a half and playing with dolls at three and a half. C was not dependent on adult suggestion or direction for play activities although she preferred the companionship of other children or adults rather than playing alone. Her most frequent playmates were two boys and one girl near her age and a girl two years older. The only difficulty stated by her mother in the play situation was C's wanting toys with which other children were playing.

C's mother stated that what she enjoyed most about C was her enthusiasm and companionship. Activities jointly engaged in by the family members were reading, listening to music, routines, hobbies, excursions to parks, going to the airport, marketing, having picnics, gardening and yard work,



playing ball, going to drive-in movies, reading and listening to stories, cooking, helping with household duties, and watching television. C watched children's programs on television from one half to an hour a day at three and a half years. Pleasures enjoyed most by the family were trips to the beach and mountains.

Important in the development of the child are the parents' methods of control of the child and the discipline. From 18 months through three and a half years of age the methods of control of diverting, praising, and speaking in a firm voice, were used. At three and a half the following methods were also used: bribing, rewarding, demonstrating, preparing C in advance, isolating, scolding, coaxing, offering choices, giving suggestions, and reasoning. C's mother stated her discipline as reasonably firm and easy going while C's father's discipline had been sometimes stern and sometimes lax until three and a half at which time it was reasonably firm. The reaction by C to discipline was more obedient and at three and a half also crying.

Behavior traits described by her mother at 18 months were aggressive, stable, calm, self-controlled, well-adjusted, spoiled, cheerful, happy, and affectionate. C was described as exhibiting the above traits also at two and a half in addition to being courageous. At three and a half the above traits with the exception of being calm described her and she also whined and was patient. Her

parents felt they needed help with C's seeking attention and her poor articulation. Her poor articulation was due to stammering apparently developed when her parents were away for a week leaving C with her grandmother when she was around two and a half. Her parents did not adequately prepare C for their departure although they were unaware that C had been upset about their leaving until they returned. The grandmother had been stern and did not notify the parents during the week of C's being so constantly upset. At this age level C was in the toddlers group. The staff members who worked with her toddlers group reported that C had been speaking plainly before her parents left but when they returned she was stammering and would not permit her mother to leave her and join the parents' meetings.

In a progress report her teacher in nursery school stated that C was affectionate and had one special friend at nursery school who was a girl C's age. In this relationship C usually assumed the role of leader. Her favorite activities indoors at nursery school were playing in the doll corner, playing with dress up clothes, and working with the art media. Outdoors she rode the large tricycles, ran, and climbed with skill. Her teacher stated that C had shown a good deal of growth in the area of trust by the end of her first year in the nursery school. The first few months of nursery school it was difficult for her to trust adults but this trust was developed with one teacher and was

carried over also to others during the year. C liked to know what was going to take place next and was capable of understanding. Her speech showed much improvement during the year and was understandable except when she was excited. C was described by her teacher as being restless, and tense most of the time. Firm, constant guidance combined with love was recommended in working with C.

A compilation of the ratings given C by the staff members and student teachers in the nursery school is found in Appendix B. On the behavior profiles checked by the staff members C was rated as hyperactive in amount of activity by three and between active and hyperactive by two staff members. Her vigor of activity was rated as impetuous by four staff members and between moderate and impetuous by one. Four staff members gave her a rating of hair trigger in sensitivity to stimulation and one gave her a rating between moderately sensitive and hair trigger. In reactivity three staff members rated her between responsive and violent and two rated her as responsive. Two gave her a rating of tensely alert in alertness with two giving her a rating between tensely alert and attentive outwardly oriented and with one rating her as attentively outwardly oriented. Three staff members gave her a rating of pleasant in her characteristic mien while two rated her between pleasant and impish. All five staff members rated her as comfortable, contented in characteristic mood. Three gave her a rating

of moderately stable while one rated her between moderately stable and extremely cycloid and one rated her as extremely cycloid. In frustration tolerance she received three ratings that were between moderately disturbed and frustration extremely disrupting and two ratings of moderately disturbed. With some exceptions the ratings given C by the staff members and by the student teachers were in agreement. Exceptions were that by one student C was given a rating of violent in reactivity, two ratings of active and one between hypoactive and active, two ratings of moderate in vigor of activity, one rating between sleepy as if pre-occupied and attentive outwardly oriented in alertness and one rating between imperturbable and moderately disturbed in frustration tolerance.

On the basis of the ratings given by the staff members C's behavior can be described as hyperactive and between active and hyperactive with three and two ratings respectively; impetuous with four ratings; hair trigger with four ratings; responsive and between responsive and violent on the basis of two and three ratings respectively; attentively outwardly oriented to tensely alert with ratings of one and two with two between them; pleasant to between pleasant and impish with three and two ratings respectively; comfortable, contented with five ratings; moderately stable to extremely cycloid with three and one ratings and one in between; and, moderately disturbed to between moderately

disturbed and frustration extremely disrupting with two and three ratings respectively.

During the food study C consumed the following percentages of nutrients in relation to the Recommended Dietary Allowances for an average of the 20 days: vitamin A, 33.4 per cent; protein, 29.6 per cent; riboflavin, 27.1 per cent; calcium, 20.5 per cent; thiamine, 16.3 per cent; iron, 15.9 per cent; calories, 14.3 per cent; ascorbic acid, 9.8 per cent; and niacin, 9.6 per cent. Her selection pattern indicated that there were eight foods she selected from 18 to 20 days, six foods from 11 to 15 days, two foods eight and nine days, nine foods from one to five days, and one food that she never selected. The foods she selected and the number of times selected follows: jello (42), bread (25), raisins (22), milk, cheese, and boiled eggs (21 each), green peas (20), pineapple chunks (18), green beans and applesauce (15 each), pear chips (14), apple wedge and beef patties (12 each), sliced peaches (11), potato (nine), carrot sticks (eight), buttered carrots (five), roast chicken and broccoli (four each), broiled flounder (three), roast beef, buttered beets, and celery sticks (two each), lettuce and tomato wedge (one each). C consumed only 57.7 per cent of the foods she selected.

In summary C was shown on her behavior profile as tending to exhibit many extremes of behavior which were impetuous, hair trigger, tensely alert, and extremely



cycloid. Although some of the methods of control used by her parents were acceptable, others were questionable as to their effectiveness. The least desirable methods appeared to be scolding and coaxing. C had a speech problem which developed during the time when her parents were away from home and had not properly prepared her for their week's absence. C was left with a stern grandmother who did not notify the parents during the week that C was so upset about their leaving her. During this same time she lost her trust in adults and rebuilding this trust had been slow. C could not judge her capacities in play, in speech, in social contacts, nor in selecting food during the food study. Of the foods she selected she consumed only 57.7 per cent which meant there was considerable plate waste. Although there were some foods she selected every day, she selected many different foods throughout the study. This scattered selection pattern was indicative of her instability and of her being unpredictable.

#### Case D

Having been born on October 19, 1959, D was five years, three months of age. Her height which was 43  $\frac{1}{3}$  inches was evaluated as near average by using a weight-height ranges chart while her weight of 51  $\frac{1}{8}$  pounds was high. She was described by her teacher as a large girl with a mass of lovely blond curls tied in a pony tail and sky blue eyes. D was the largest girl in the nursery school.

When D was born her mother was 35 and her father was 41 years of age. Her father was born and reared in California. He received a degree in business from a university and at the time of the study was a merchandise manager for a department store and was active in a civic organization. The mother of D was born and reared in North Carolina. She had a year of study in a college and a year in a business school and listed being a member of a church as her only civic activity. D was an only child. She had always lived at the same address where her parents had lived for six years before she was born.

At the time of the study D was in her second year at nursery school. She had attended two play groups before entering nursery school, one of which was the toddlers group at the nursery school. Her mother described her appetite as good at three and excellent at four. Her favorite foods at three were jello, carrots, rice, potatoes, and ham. At four her favorite foods were ham, potatoes, rice, and steak. Foods disliked at three were hot dogs, butter, chocolate ice cream, and green beans, while at four years only green beans were listed as disliked food. She has been given 6 cc's of the vitamin supplement Tri Vi Flor daily at three and at four one tablet of Vi-Daylen with fluoride.

D received 12 hours of sleep at night with her usual bedtime activity being for her mother or father to read her

a story. Her mother indicated that putting D to bed was the exclusive privilege of D's parents. Her sleep was sound and she had a daily nap from one to one and a half hours.

D's mother stated that D almost toilet trained herself with training for bowel control having begun at two years of age and training for bladder control having begun at one and a half years. She was trained by three years of age although her mother commented that she occasionally had to be reminded to take care of her urination needs. She was completely trained by four years of age for both night and day; however, she was taken up at night to go to the toilet. At three years of age she could do these things for herself: wash her face and hands, use the toilet for urination, take off her wraps, put her clothes away, and brush her teeth. She could also put on her wraps at four years of age.

Her favorite indoor play equipment at three were her horses and balls with her favorite outdoor equipment being her wheel toys. At four years of age her rope swing and swimming pool were also favorite equipment. Her favorite activity at three and four had been water play with dramatic play also a favorite at four. D's most frequent playmates were two girls one year older than she with whom she was reported by her mother to play well. Her mother stated that prior to her entrance in nursery school D spent from

two to three hours with her father and twenty-four hours with her mother. Activities jointly engaged in by the family members when D was three years of age were reading, listening to music, excursions to the park, airports, marketing, gardening and yard work, playing ball, stories, cooking, helping with household duties, riding, and television which D watched two hours a day. The above activities were also enjoyed at four years of age as well as the following: routines, hobbies, swimming, and going out to dinner. Music experiences provided for D were her having her own records and adult records for a record player. Pleasures enjoyed most by the family were having dinner with D's grandparents, birthdays, holidays, swimming, and working around the yard. When asked what she enjoyed most about D, her mother stated that she enjoyed everything about D and everything she did for her and with her.

Her parents methods of control at three years were scolding, coaxing, reasoning, and the following methods which were described as most helpful: spanking, diverting; praising; and speaking in a firm voice. Another method used at three years by D's parents was described by a staff member as nagging. At four years of age the following methods were used which were all very helpful: praising, speaking in a firm voice, isolation, and depriving of pleasure. At both age levels her parents' discipline of D was reasonably firm with her reactions to discipline being

sorry, being more obedient, and at three years she also cried. Behavior traits at age three were described as being shy, timid, calm, trustful, and patient with her parents stating that they needed help with D's refusal to talk, sensitiveness, and lack of self-confidence. Her personality traits at age four were described as calm, trustful, patient, stable, self-controlled, well-adjusted, cheerful, and happy. Her only fear shown was of loud noises.

When D was in the toddlers group her mother appeared to be overprotective and to cause D to be quite dependent on her; however, throughout both years in the nursery school it was apparent on records that her mother was aware of this and tried to overcome it. In a progress report written by D's teacher at the end of her first year in nursery school indicated that at the beginning of the year D had been a quiet, reserved child who held back from playing with the other children; however, by the end of the year she played actively with her peers and tried many new experiences. She was not openly affectionate toward adults but her attachment to peers was shown in friendly pats given them and in wanting to play near them. When D was rejected by her peers she had difficulty coping with the situation and reacted frequently by hitting; however, she listened to and understood explanation with isolation being the most successful method of control. Parent cooperation was described as excellent and recommendations for D to be



encouraged to think and act independently were given her parents.

During her first year in nursery school D did not respond as favorably as she was capable of doing in group procedures because of frequently teasing and upsetting someone in the group. She was described during her first year at nursery school as a happy child who especially enjoyed riding on the wheel toys, climbing on the jungle gym, and rhythms.

At the end of her second year in nursery school she showed a great deal of physical vigor and it was difficult for her to settle down at rest period. She enjoyed the companionship of other children and participated socially through verbal skills, play ideas, and physical and muscular vigor. She usually preferred to lead and could be very domineering in her leadership. D teased frequently and at times was very critical of the other children although at the end of the year this behavior had improved to a marked degree. D often seemed to be inconsiderate of the feelings of other children until their feelings were pointed out to her. By the end of the year D was learning to handle her emotions and to be more accepting of demonstrations of attention from her teachers and of physical affection although her teacher stated that this was difficult for D. The teacher suggested to D's mother that perhaps D needed to be cuddled more but coddled less and that it would seem

well to let up on adult expectations for D's behavior. D responded well in nursery school to firm, kind discipline.

Appendix B shows the behavior profiles filled out by staff members and student teachers in the nursery school. On the profiles checked by the five staff members D was rated as active by three, hyperactive by one, and between active and hyperactive by one. Her vigor of activity was rated as impetuous by three staff members and between moderate and impetuous by two. She was rated as moderately sensitive by two staff members, between impervious and moderately sensitive by two, and between moderately sensitive and hair trigger by one. In reactivity she was rated by two staff members as responsive, sluggish by one, between sluggish in reaction and responsive by one, and violent by one. She was rated attentive outwardly oriented in alertness by two, tensely alert by two, and one rated her as being between attention outwardly oriented and tensely alert. Three staff members rated her characteristic mien as impish while one rated it pleasant and another between pleasant and impish. In characteristic mood three staff members rated her as comfortable with two rating her between indifferent and comfortable. Three staff members rated her as moderately stable while one gave her a rating between invariable and moderately stable and one giving her a rating between moderately stable and extremely cycloid. In frustration tolerance four gave her a rating of moderately

disturbed and one rated her between moderately disturbed and frustration extremely disrupting.

D can be described as being from active to hyperactive; from between moderate and impetuous to impetuous; from between impervious and moderately sensitive to between moderately sensitive and hair trigger; from sluggish in reaction to between responsive and violent; from attentive outwardly oriented to tensely alert; from pleasant to impish; from between indifferent and comfortable to comfortable; from between invariable and moderately stable to between moderately stable and extremely cycloid; and from moderately disturbed to between moderately disturbed and frustration extremely disrupting. There was much agreement between the ratings given by staff members and the ratings given by the student teachers except for the two tendencies of sensitivity to stimulation in which she received a rating of hair trigger by two students and in reactivity in which she received a rating of violent by one student.

During the noon meal at the nursery school for the average of twenty days of the food research study D consumed the following percentages of nutrients in relation to the Recommended Dietary Allowances: riboflavin, 25.4 per cent; calcium, 23.2 per cent; protein, 23.0 per cent; vitamin A, 15.5 per cent; calories and thiamine, 11.0 per cent each; niacin, 7.6 per cent; iron, 6.0 per cent; and ascorbic acid, 5.0 per cent. Her selection pattern indicated that there

were six foods she selected between 16 and 20 days, two foods she selected between 12 and 15 days, two foods she selected between six and ten days, four foods she selected between one and five days, and 12 foods that she never selected. Foods she selected and the number of times she selected each follow: milk (27), roast beef (19), beef pattie and jello (18 each), applesauce and cheese (16 each), pineapple chunks (15), bread (13), apple wedge (ten), carrot sticks (six), celery sticks (five), green peas (three), and buttered carrots and buttered potato (one each). She consumed approximately 66.6 per cent of the foods she selected.

The mother of case D had been very protective when D was quite young. Her mother and father were older than the typical ages of couples when their first child was born. The information on file in the nursery school revealed that the mother was eager to cooperate with the staff in learning better methods of discipline and was willing to follow any procedure recommended. The parents' methods of control showed a change from the beginning of D's first year in nursery school to the time of the study. Although some of the methods of control used by her parents the first year were acceptable, others such as nagging, scolding, and spanking tended to leave all three upset and frustrated without accomplishing the purpose. The second year these methods were not reported by the mother as having been used.

As a three year old D was described by her teachers as quiet and reserved while as a four year old she was described as out of bounds, domineering, and inconsiderate of the feelings of other children. This behavior at four years of age was basically typical of a four year old's struggle for independence although D may have been more forceful than many four year olds in this struggle. Prior to entering nursery school D had very few play experiences with other children. D showed several extremes of behavior on her profile such as tending to be hyperactive, impetuous, tensely alert, impish, and sluggish in reaction. There was no indication in the information on file in the nursery school that D was sluggish in reaction as checked by one staff member on the profile. D was the largest girl in the nursery school and above average in weight which could have influenced the staff member's opinion. Sheldon (1942) found a relationship between body build and personality; however, whether this is a cause and effect relationship or whether personalities are influenced by body build because of expectancies of others has not been established. D tended to exhibit a stability of mood which was shown in her selection pattern in which she chose the same foods nearly every day. Her mother described D's appetite as being better at four years of age than at three years of age. D could not accurately choose the quantity of food she was to eat by consuming only 66.6 per cent of the food she selected.



Case E

E was born on January 27, 1960, and at the time of the study was five years of age. An evaluation of her height which was 38 3/4 inches and her weight which was 33 pounds by using a weight-height ranges chart indicated that she was low in both height and weight. E was described by her teacher as a petite, active child with blazing red hair, sparkling blue eyes and a soft but forceful voice.

When E was born her mother was 23 and her father was 33 years of age. Her father was born in New York and reared in New York and North Carolina. He was graduated from a university with a professional degree and at the time of the study he was practicing his profession. E's mother was born and reared in New York. She was graduated from a university with a Master's of Arts degree. Both parents were very active in civic and church organizations. E had one sister a year younger and was in the care of a maid two days a week. She lived in Greensboro since birth and had not been separated from her parents for a long period of time. At the time of the study she was in her second year at the nursery school with previous group experience including E's having been in the toddlers group at the nursery school. She had a dog for a pet.

Her mother described her appetite as fair as a three and a half year old while at four and a half it was described as good. E ate with her family and completely fed

herself. Her favorite food was stated as peanut butter while jelly was a disliked food.

E received 11 hours of sleep at night with her attitude at bedtime described as good and her sleep described as sound. Her usual bedtime activity was for her mother to sing lullabies. She shared a room with her sister but slept alone. At three and a half she had a daily nap of an hour while at four and a half she sometimes had a half hour nap.

Training for both bowel and bladder control was begun at 20 months and by three and a half she was completely trained for both night and day and stated her need to use the toilet. E could do the following things at three and a half years of age: wash her face and hands, bathe herself, use the toilet for urination and bowel movement, take off her wraps, put her toys away, and brush her teeth. At four and a half she could also dress and undress herself, put on her wraps, put her clothes away, lace and tie her shoes, and comb her hair.

Her mother stated that crayons were favorite toys at both age levels with puzzles also being a favorite at three and a half and dolls and scissors being favorites at four and a half years of age. Indoors she played in the playroom while outdoors she played in a dead-end street with her favorite outdoor toys and equipment being bicycles, swings, and the jungle gym. E was reported to get along well with her sister and children outside the family. She

spent from two to three hours a day with her father and from five to eight hours with her mother. Activities enjoyed jointly by the family were reading, routines, hobbies, excursions to parks, going to the airport, marketing, going on picnics, gardening and yard work, playing ball, stories, cooking, helping with household duties, riding, camping, watching television, and listening to music. Music experiences provided for E were children's records and records also enjoyed by her parents played on a record player. She watched an average of one hour of children's television programs each day. Pleasures enjoyed most by the family were camping, reading, and music.

Parents' methods of control used at three and a half not used at four and a half were demonstrating, isolating, scolding, praising, and suggesting with a method used at four and a half not used at three and a half being ignoring. Methods used at both age levels were depriving of pleasure, spanking, offering choices, reasoning, preparing child in advance, and speaking in a firm voice. Her mother's discipline was reasonably firm at both ages while her father's discipline was stern at three and a half and reasonably firm at four and a half. E's usual reaction to discipline at three and a half was being more obedient whereas at four and a half she sulked after being disciplined. Behavior traits described by her mother at both ages were being stable, well-adjusted, cheerful, trustful,

happy, and affectionate with the following traits also listed at four and a half: being aggressive, calm, self-controlled, and patient. At three and a half her mother reported that E's arguing with her repeatedly caused conflict.

At both age levels E's relations with adults were described as independent with her enjoying approval but not being dependent on it and seldom needing adult supervision. Near the end of her first year in nursery school her teacher reported that E had changed during the year from activity-centered to being children-centered and being liked by the children and liking them in return. By her second year in nursery school she had a few special friends but did not limit her friendships to them. Early in her nursery school experiences there were times when E was not permitted to enter a group of children; however, when the teacher helped her enter the group she played cooperatively and would fill any role in the play situation. She frequently was a leader in her own age group but could follow as well as participate through her use of materials, ideas for plays, physical vigor, and verbal skills.

E was described as having a small agile body and being able to perform daring stunts on the jungle gym. Her small muscular development was shown to be well developed by her second year in nursery school in her use of pencils, crayons, brushes, puzzles, in dressing and undressing, and

in handling eating utensils. She eagerly participated in group activities such as stories, rhythms, games, and excursions.

In a progress report at the end of her second year in nursery school her teacher stated that she believed that E's parents had reached a happy medium in disciplining E in having established wide limits within which E had much freedom to move. Distraction and helping E understand the situation were stated as being two methods very helpful in disciplining E. In a parent conference E's mother mentioned that E's father was not sure he liked the idea of her going to nursery school but that he tried to keep these feelings from E. Her mother also commented that she was not as concerned about E as she was about E's younger sister to which the teacher responded that the two children should not be compared. Once in a parent conference her mischievous nature, enjoyment of humor, and excellent physical coordination were mentioned. E's teacher referred to her in a conference as being well-adjusted, cooperative, and happy.

Results of behavior profiles filled out by the staff members and student teachers are shown in Appendix B. On the profiles filled out by the five staff members three rated her between active and hyperactive in amount of activity while one rated her as active and one rated her as hyperactive. In vigor of activity four staff members rated her between moderate and impetuous with one rating her



as impetuous. Four gave her a rating between moderately sensitive and hair trigger in sensitivity to stimulation with one giving her a rating of moderately sensitive. In reactivity four rated her as responsive while one rated her between responsive and violent. Three staff members gave her a rating of attentive outwardly oriented in alertness with two rating her between attentive outwardly oriented and tensely alert. Her characteristic mien was rated as pleasant by three staff members and as impish by one and between pleasant and impish by one. Four gave her a rating of comfortable, contented in her characteristic mood while one rated her between indifferent and comfortable, contented. Her stability of mood was rated by three staff members as moderately stable with one giving her a rating between invariable and moderately stable and one giving her a rating between moderately stable and extremely cycloid. Her frustration tolerance was rated by three as being between imperturbable and moderately disturbed and as moderately disturbed by two.

There was much agreement among the ratings of staff members and the student teachers. Two exceptions were that she was rated by one student as violent in reactivity and as tensely alert in alertness by one student.

On four behavior tendencies there was considerable agreement among the staff members with four out of five giving the same ratings. On all of the tendencies the

ratings were within three degrees of each other on the continuum with five degrees having been possible. On six tendencies the ratings were within two degrees of each other. E can be described in each of the nine behavior tendencies in the following manner: amount of activity, from active to hyperactive with one rating in each and three in between; vigor of activity, four ratings between moderate and impetuous and one rating of impetuous; sensitivity to stimulation, between moderately sensitive to hair trigger with four ratings and one rating of moderately sensitive; reactivity, responsive with four ratings and one rating between responsive and violent; alertness, from attentive outwardly oriented with three ratings and two rating between attentive outwardly oriented and tensely alter; characteristic mien, pleasant with three ratings and between pleasant and impish with one and impish with one; characteristic mood, comfortable on the basis of four ratings with one rating between indifferent and comfortable; stability of mood, moderately stable with a rating of three, between invariable and moderately stable with a rating of one; and between moderately stable and extremely cycloid with a rating of one; frustration tolerance, between imperturbable and moderately disturbed with a rating of three and moderately disturbed with a rating of two.

For an average of the 20 consecutive days of the food research study E consumed the following percentages of

nutrients in relation to the Recommended Dietary Allowances: protein, 46.7 per cent; vitamin A, 33.2 per cent; riboflavin, 31.2 per cent; calcium, 24.8 per cent; niacin, 17.4 per cent; calories, 16.2 per cent; iron, 14.6 per cent; thiamine, 13.3 per cent; and ascorbic acid, 4.5 per cent. Her selection pattern showed that there were seven foods E selected from 16 to 20 days, four foods from seven to 11 days, two foods from one to three days, and 13 foods which she never selected. The foods she selected and the number of times selected follow: applesauce (25), roast beef, milk, and broiled flounder (21 each), roast chicken (20), boiled eggs (18), cheese (16), jello (13), carrot sticks (11), celery sticks (nine), sliced peaches (seven), bread (three), and beef pattie (one). E consumed 81.7 per cent of the food she selected.

E was a child of very active parents who participated eagerly in civic and religious organizations. They appeared to be quite energetic as was E. Her teacher indicated in a progress report that E's parents seemed to have a good understanding of E's abilities and capabilities and exhibited a discipline in which wide limits were set. E was pleasant and enjoyed the children in the nursery school and was enjoyed by them. She was described by one staff member as impish; however, records revealed that the only time she appeared to be this way was when other children would not allow her to enter their play group. E's tendency to be

consistent was demonstrated in her selection pattern in which she chose the same foods nearly every day. E had the ability to judge her own capacity and in doing so consumed 81.7 per cent of the foods she selected.

The five girls considered as a group consumed relatively small amounts of food. The average percentage consumed of the Recommended Dietary Allowances for calories for the noon meal was 13.6 per cent. The average consumption of nutrients of the group indicated that protein (31.9 per cent) was the nutrient consumed in the greatest percentage of the Recommended Dietary Allowances. The behavior profile of all the girls indicated that they were at least moderately active. The order in which the other nutrients were consumed based on percentages of the Recommended Dietary Allowances follows: vitamin A (25.6 per cent), riboflavin (25.5 per cent), calcium (22.8 per cent), thiamine (12.6 per cent), niacin (10.7 per cent), iron (10.4 per cent), and ascorbic acid (6.3 per cent). It should be pointed out that there were only two foods used in the study (broccoli and raw cauliflower) that were high in ascorbic acid and it should be noted that at juice time prior to the noon meal the children were often served orange juice or grapefruit juice, both of which are high in ascorbic acid.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

#### Summary

The preschool years are important in helping the child establish good eating habits which will carry over into later life. Food is important in at least the following three areas of development: physically, food builds body tissues, regulates body processes, supplies energy to the body (Chaney, 1960, 25), and develops eye, hand, and mouth coordination; emotionally, food provides for interpersonal relationships with others; and mentally, food provides for an important learning process (Stitt, 1962, 5). Factors associated with the child's choice and consumption of foods have been indicated to be such things as a relaxed atmosphere, the mechanical ease of eating, increase in time of attendance in nursery school, and decrease in number of times urged or helped to eat (Dunshee, 1931). An important factor also indicated in the selection and consumption of foods by the child were the kinds of foods offered with desserts and meats generally preferred over vegetables (Fesmire, 1965; Dierks and Morse, 1965; Lamb and Ling, 1946; Vance, 1932).

An interrelationship was indicated by McCarthy (1935)



to exist between the food preferences of the family and food preferences of the problem eater. The appetite of the child was found by Baldwin (1944) to be associated with the parental control of the child with coercive control associated with a hearty appetite. He also found indications that a lack of finicalness was associated with children from homes in which they received an abundance of affection and attention. Eliot (1935) indicated that a relationship existed between the personality of a child and his eating habits with a child who was a finicky eater being rated higher in the traits of anger, excitability, moodiness, self-expression, desire for attention, and leadership. A non-finicky child received higher ratings in general health, regard for the rights of others, and for authority, emotional control, joy, and adjustment.

The purpose of this study was to investigate the interrelationships of food selected, food consumed, and behavior exhibited by five preschool children who were in attendance at the Nursery School (School of Home Economics) at the University of North Carolina at Greensboro. Data used were lunch check sheets filled out during the twenty consecutive school days of the food study (Fesmire, 1965) at the nursery school, during the noon meal, behavior profiles checked for each child by five staff members and five student teachers in the nursery school, and information from family background records and development of the child on file in the nursery school.

Each day of the food study each of the 24 children, who were in attendance at the nursery school, entered the room for lunch in random order and selected his food from 24 foods which were randomly placed by groups on a serving table. The groups were meat and meat substitutes, vegetables, finger foods, and desserts, with bread also being offered, and milk already at each child's place. When selected by the child the food was served to him in a predetermined amount which was generally one tablespoon. The predetermined amount of each food was weighed each day to the nearest tenth of a gram prior to the noon meal in order to determine the amount of food consumed from the amount selected. Each day a nursery school teacher or a graduate student sat with the children at a regularly assigned place at one of the five tables, but did not eat so that she could check the number of servings of the specific foods each child selected. The teacher or graduate student neither encouraged or discouraged the child's eating with the words "food" and "eat" not being mentioned. The children could return to the serving table at any time during the meal to get more food, and the meal was not over until the last child willingly left the table.

The children for this study were selected on the basis of their being present every day of the food study. Although there were an equal number of boys and girls in the food study, it was a matter of coincidence that the only

children present for the twenty consecutive days were five girls. The foods selected and consumed by each of the five children, results of the behavior profiles checked by the five staff members and student teachers, and information on file in the nursery school concerning the background and the development of each child were presented in case study form.

### Conclusions

Generalizations or specific assumptions cannot be drawn because the number of children used in the study was small; however, certain general trends or conclusions can be made which would be helpful to parents as well as professional persons in the area of child development. From the five case studies there appear to be some apparent inter-relationships among foods selected and consumed, factors directly influenced by the children's environment, and the children's behavior which was described by the staff members and student teachers in the nursery school. The following conclusions are stated as hypotheses which could be tested by studying a larger sample of children under more controlled research methods and by employing appropriate testing devices. The conclusions are:

1. A child who is from a friendly, pleasant family tends to be better able to judge the amount of food which he can eat. Child A ate 86.5 per cent of the food she selected.

2. A child who appears to have a stable personality tends to show stability in food selection patterns. The child described as B chose approximately the same foods in the same amounts each of the twenty days.
3. A child whose social behavior is unpredictable tends to be unpredictable in other areas of behavior. It can be noted that C, whose personality was unpredictable, also had a varied or unpredictable food selection pattern.
4. A child from a family environment in which parental discipline is not consistent and the child does not know what is expected of him tends to consume a low percentage of foods selected. This appeared to be so in the case of D who only consumed 66.6 per cent of the total amount of food she selected.
5. A child whose behavior is consistent tends to exhibit consistent activity or decision making patterns. The girl described as E was a case in point in that she chose the same foods almost every day.
6. Preschool children tend to consume relatively small amounts of food. The five girls described in the present study consumed only 13.6 per cent of the nutrients when compared to the standards set up by the National Research Council on Recommended Dietary Allowances. This was a small amount although it was for only one of the three meals per day.

### Limitations

Certain limitations exist because of the nature of the group studied and the procedures used. Parents of all five of the subjects were from upper-middle or upper socio-economic classifications. Children from lower socio-economic classifications might have exhibited quite different food habits. The results of the study could have been different if some boys had been included instead of having all girls. The small number of children used presented a limitation as well as did the fact that quite possibly before the food study was conducted some food prejudices were already formed either at home or at the nursery school. All of the foods used in the study had previously been served the children. A limitation existed because the food study covered only a period of twenty days.

Another limitation was that of not being able to compare the total daily nutrient intakes of the children with the Recommended Dietary Allowances which indicate the daily nutrient intakes judged to be adequate for maintenance of good nutrition (Recommended Dietary Allowances, 1964, v). This limitation was due to having precise measurement of food intake only at the noon meal; however, nutritive intakes at the meal were presented in the percentages they were of the Recommended Dietary Allowances. A limitation in determining the nutrient consumption was the inability to obtain the exact amount of added seasonings, however small the amount was.



### Recommendations for Research

Recommendations for further research are listed as follows:

It is recommended that a study be undertaken to develop quantitative measures for both the behavior profile and food preferences of children by the use of acceptable scaling techniques.

Another study might be made to investigate an inter-relationship between behavior of children and their food preferences with a large number of children whose families are in the upper, middle, and lower socio-economic stratifications.

It would be desirable to conduct an experimental study to investigate the effects in producing differences between the kinds and amounts of foods consumed by an experimental and a control group of preschoolers. The control group would have their plates served from a pre-planned menu. The experimental group would participate in selecting their foods served cafeteria style.

The relationship between parents' expectation patterns and the selection and consumption of food by their children would be an appropriate study to investigate.

An investigation could be made of the food habits of children in order to determine the existence of peak periods of food intake as time of day, time of year, and age in months of the child.

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## DEFINITION OF TERMS USED ON BEHAVIOR PROFILE

### Activity

- \* Active----- Characterized by spontaneity, vigor, and much movement (English and English, 1958, 5).
- Hypoaactive----- Relaxed or lacking (English and English, 1958, 245) in working, acting, and functioning (English and English, 1958, 9).
- Hyperactive----- Excited (English and English, 1958, 244) in movement and spontaneity (English and English, 1958, 9).

### Tendency of Activity

- \* Moderate----- in the degree of activity (Mallick, 1958, 1377).
- Lethargic----- Drowsiness, inactive, and apathetic (English and English, 1958, 245).
- Impetuous----- Hastily energetic and rushing with force (English, 1958, 1247).

### Sensitivity to Stimulation

- \* Moderately sensitive----- Relaxed moved in a limited manner to emotional situations (English and English, 1958, 492).

\* Asterisk denotes desirable position on the behavior tendency continuum.

## DEFINITION OF TERMS USED ON BEHAVIOR PROFILE

### Activity

- \*<sup>1</sup>Active----- Characterized by spontaneity, vigor, and much movement (English and English, 1958, 9).
- Hypoactive----- Below or lacking (English and English, 1958, 245) in working, acting, and functioning (English and English, 1958, 9).
- Hyperactive----- Excess (English and English, 1958, 244) in movement and spontaneity (English and English, 1958, 9).

### Vigor of Activity

- \* Moderate----- Limited in the degree of activity (Neilson, 1958, 1577).
- Lethargic----- Drowsiness, inactive, and apathetic (English and English, 1958, 293).
- Impetuous----- Hastily energetic and rushing with force (Neilson, 1958, 1249).

### Sensitivity to Stimulation

- \* Moderately sensitive  
----- Being moved in a limited manner to emotional situations (English and English, 1958, 492).

---

<sup>1</sup>Asterisk denotes desirable position on the behavior tendency continuum.

- Impervious----- Blase, heedless manner (Plant, 1950, 48). The child hears what we say but it does not seem to be taken in (Plant, 1950, 49).
- Hair trigger----- Easily moved (Neilson, 1958, 1125) by emotional situations (English and English, 1958, 492).

### Reactivity

- \* Responsive----- Ready to respond to any stimulus (English and English, 1958, 463).
- Sluggish in  
reaction----- Slow to respond and not easily aroused (Neilson, 1958, 2370) to outside stimulus (English and English, 1958, 440).
- Violent----- Intensity (Neilson, 1958, 2828) in feeling, behavior, or language (Neilson, 1958, 2846).

### Alertness

- \* Attentive out-  
wardly oriented-- Intent (Neilson, 1958, 178) in acquainting oneself with the situation existing (Neilson, 1958, 1720) on the outside (Neilson, 1958, 1736).
- Sleepy as if  
preoccupied----- Reduced responsiveness to external stimuli (English and English, 1958, 506) as a result of being lost in thought or absorbed (Lewis, 1961, 372).
- Tensely alert----- Extreme susceptibility (Neilson, 1958, 2602) to ideas when presented and to environmental changes (English and English, 1958, 22).

Characteristic Mien

- \* Pleasant----- Cheerful, good-humored, agreeable, and likable (Lewis, 1961, 364).
- Serious, grave----- Solemn in disposition, appearance, or manner (Neilson, 1958, 2285).
- Impish----- Inclined to cause annoyance to others (Neilson, 1958, 536).

Characteristic mood or reaction toward world

- \* Comfortable,  
contented----- Peaceful (Lewis, 1961, 98), helpful (Neilson, 1958, 536) and satisfied with that which one has (English and English, 1958, 117).
- Indifferent----- Apathetic, showing no interest or concern (Neilson, 1958, 1266).
- Angry, hostile----- Unfriendly, and antagonistic (Neilson, 1958, 205) and enraged showing resentment (Neilson, 1958, 103).

Stability of mood

- \* Moderately stable-- A reasonable (Lewis, 1961, 317) degree of durability and steadiness in purpose (Neilson, 1958, 2449).
- Invariable----- Unchangeable, inflexible, unvarying (Lewis, 1961, 271).
- Extremely cycloid-- Showing excessively (Neilson, 1958, 903) marked swings of moods (English and English, 1958, 136).

Frustration Tolerance

- \* Moderately  
disturbed----- A reasonable (Lewis, 1961, 317)  
degree of uneasiness and apprehensiveness (Lewis, 1961, 156)  
or anxiety (Lewis, 1961, 38).
- Imperturbable----- Incapable of being disturbed  
(Neilson, 1958, 1249) or upset  
(Neilson, 1958, 744).
- Frustration  
extremely  
disrupting----- Excessive (Neilson, 1958, 903)  
interference with goal directed  
activity (English and English,  
1958, 217) by the breaking down  
of organization or breaking  
apart (Neilson, 1958, 753).



Staff Members  
Student Teachers

BEHAVIOR PROFILE

Behavior Profile

Name of Child \_\_\_\_\_ Date of Birth \_\_\_\_\_ Date \_\_\_\_\_

For each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the degree of behavior tendency on the right end of the line would be considered more favorable than the left end of the line.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Inert	Active	Hyperactive
Quality of Activity	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Indifferent	Interested	Enthusiastic
Sensitivity to Stimulation	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Insensitive	Sensitive	Overly Sensitive
Activity	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Slow or Inhibited	Responsive	Violent
Alertness	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Unalert or Inattentive	Alert	Overly Alert
Characteristic Mood	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Serious	Cheerful	Happy
Characteristic Mood or Reaction Toward Others	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Unfriendly	Friendly	Overly Friendly
Stability of Mood	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Unstable	Stable	Overly Stable
Frustration Tolerance	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x	1x 2x 3x 4x 5x
	Low	High	Overly High

APPENDIX B

x=Staff Members

y=Student Teachers

## RATINGS GIVEN A BY STAFF MEMBERS AND STUDENT TEACHERS

## Behavior Profile

Name of Child A Date of Birth \_\_\_\_\_ Date \_\_\_\_\_

Let each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the optimal or most desirable position on the rating continuum would be somewhere near the middle, the two ends of the line representing the less favorable extremes.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	<u>1y</u>	<u>2x 2y</u>	<u>3x 2y</u>	
	Hypoactive	Active		Hyperactive
Vigor of Activity	<u>2x 2y</u>	<u>2x 2y</u>	<u>1x 1y</u>	
	Lethargic	Moderate		Impetuous
Sensitivity to Stimulation	<u>2x</u>	<u>3x 4y</u>	<u>1y</u>	
	Impervious	Moderately Sensitive		Hair Trigger
Reactivity	<u>4x 3y</u>	<u>1x 1y</u>	<u>1y</u>	
	Sluggish in Reaction	Responsive		Violent
Alertness	<u>2x 2y</u>	<u>2x 2y</u>	<u>1x 1y</u>	
	Sleepy as if Preoccupied	Attentive Outwardly Oriented		Tensely Alert
Characteristic Mien	<u>1x</u>	<u>2x 5y</u>	<u>2x</u>	
	Serious Grave	Pleasant		Impish
Characteristic Mood or Reaction Toward World	<u>1x</u>	<u>3x 5y</u>	<u>1x</u>	
	Indifferent	Comfortable, Contented		Angry Hostile
Stability of Mood	<u>1x 1y</u>	<u>4x 3y</u>	<u>1y</u>	
	Invariable	Moderately Stable		Extremely Cycloid
Frustration Tolerance	<u>1x 2y</u>	<u>4x 2y</u>	<u>1y</u>	
	Imperturbable	Moderately Disturbed		Frustration extremely disrupting

x=Staff Members  
y=Student Teachers

# RATINGS GIVEN BY STAFF MEMBERS AND STUDENT TEACHERS

## Behavior Profile

Name of Child \_\_\_\_\_ B \_\_\_\_\_ Date of Birth \_\_\_\_\_ Date \_\_\_\_\_

Let each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the optimal or most desirable position on the rating continuum would be somewhere near the middle, the two ends of the line representing the less favorable extremes.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	_____	5x 3y	2y	_____
	Hypoactive	Active		Hyperactive
Vigor of Activity	_____	5x 3y	2y	_____
	Lethargic	Moderate		Impetuous
Sensitivity to Stimulation	_____	1y 4x 2y	1x 1y	1y
	Impervious	Moderately Sensitive		Hair Trigger
Reactivity	_____	1x 1y 4x 2y	1y	1y
	Sluggish in Reaction	Responsive		Violent
Alertness	_____	1y 4x 2y	1x	2y
	Sleepy as if Preoccupied	Attentive Outwardly Oriented		Tensely Alert
Characteristic Mien	_____	4x 4y	1y	1x
	Serious Grave	Pleasant		Impish
Characteristic Mood or Reaction Toward World	_____	5x 5y		
	Indifferent	Comfortable, Contented		Angry Hostile
Stability of Mood	_____	1x 2y 3x 3y	1x	
	Invariable	Moderately Stable		Extremely Cycloid
Frustration Tolerance	_____	1x 2y 3x 2y	1x 1y	
	Imperturbable	Moderately Disturbed		Frustration extremely disrupting

x=Staff Members  
y=Student Teachers

# RATINGS GIVEN C BY STAFF MEMBERS AND STUDENT TEACHERS

## Behavior Profile

Name of Child \_\_\_\_\_ C \_\_\_\_\_ Date of Birth \_\_\_\_\_ Date \_\_\_\_\_

Let each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the optimal or most desirable position on the rating continuum would be somewhere near the middle, the two ends of the line representing the less favorable extremes.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	_____	1y	2y	2x 2y	3x	_____
	Hypoactive		Active		Hyperactive	
Vigor of Activity	_____		2y	1x 2y	4x 1y	_____
	Lethargic		Moderate		Impetuous	
Sensitivity to Stimulation	_____		2y	1x 3y	4x	_____
	Impervious		Moderately Sensitive		Hair Trigger	
Reactivity	_____		2x 3y	3x 1y	1y	_____
	Sluggish in Reaction		Responsive		Violent	
Alertness	_____		1x 2y	2x 1y	2x 1y	_____
	Sleepy as if Preoccupied		Attentive Outwardly Oriented		Tensely Alert	
Characteristic Mien	_____		3x 5y	2x		_____
	Serious Grave		Pleasant		Impish	
Characteristic Mood or Reaction Toward World	_____		5x 4y	1y		_____
	Indifferent		Comfortable, Contented		Angry Hostile	
Stability of Mood	_____		3x 4y	1x 1y	1x	_____
	Invariable		Moderately Stable		Extremely Cycloid	
Frustration Tolerance	_____	1y	2x 3y	3x 1y		_____
	Imperturbable		Moderately Disturbed		Frustration extremely disrupting	

x=Staff Members  
y=Student Teachers

# RATINGS GIVEN D BY STAFF MEMBERS AND STUDENT TEACHERS

## Behavior Profile

Name of Child \_\_\_\_\_ D \_\_\_\_\_ Date of Birth \_\_\_\_\_ Date \_\_\_\_\_

Let each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the optimal or most desirable position on the rating continuum would be somewhere near the middle, the two ends of the line representing the less favorable extremes.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	_____	3x 1y	1x 2y	1x 2y
	Hypoactive	Active		Hyperactive

Vigor of Activity	_____	2x 3y	3x 2y
	Lethargic	Moderate	Impetuous

Sensitivity to Stimulation	_____	2x 1y	2x 2y	1x	2y
	Impervious	Moderately Sensitive			Hair Trigger

Reactivity	_____	1x	1x	2x 2y	1x 2y	1y
	Sluggish in Reaction			Responsive		Violent

Alertness	_____	2x 4y	1x	2x 1y
	Sleepy as if Preoccupied	Attentive Outwardly Oriented		Tensely Alert

Characteristic Mien	_____	1x 4y	1x 1y	3x
	Serious Grave	Pleasant		Impish

Characteristic Mood or Reaction Toward World	_____	2x	3x 3y	2y
	Indifferent	Comfortable, Contented		Angry Hostile

Stability of Mood	_____	1x	3x 4y	1x 1y
	Invariable	Moderately Stable		Extremely Cycloid

Frustration Tolerance	_____	4x 5y	1x
	Imperturbable	Moderately Disturbed	Frustration extremely disrupting



x=Staff Members  
y=Student Teachers

### RATINGS GIVEN BY STAFF MEMBERS AND STUDENT TEACHERS

## Behavior Profile

Name of Child E Date of Birth          Date         

Let each horizontal line below represent the various degrees or strengths of the particular behavior tendency indicated at the left of the line. In each instance the optimal or most desirable position on the rating continuum would be somewhere near the middle, the two ends of the line representing the less favorable extremes.

Place a dot on each line at a point which, in your judgment, indicates the child's position on that particular scale. Make a "profile" by drawing lines connecting the dots.

Activity (Amount)	<u>1y</u>	<u>1x 1y</u>	<u>3x 2y</u>	<u>1x 1y</u>
	Hypoactive	Active		Hyperactive
Vigor of Activity	<u>1y</u>	<u>4x 1y</u>	<u>1x 3y</u>	
	Lethargic	Moderate		Impetuous
Sensitivity to Stimulation	<u>1x 3y</u>	<u>4x 2y</u>		
	Impervious	Moderately Sensitive		Hair Trigger
Reactivity	<u>4x 4y</u>	<u>1x</u>	<u>1y</u>	
	Sluggish in Reaction	Responsive		Violent
Alertness	<u>3x 2y</u>	<u>2x 2y</u>	<u>1y</u>	
	Sleepy as if Preoccupied	Attentive Outwardly Oriented		Tensely Alert
Characteristic Mien	<u>3x 4y</u>	<u>1x</u>	<u>1x 1y</u>	
	Serious Grave	Pleasant		Impish
Characteristic Mood or Reaction Toward World	<u>1x</u>	<u>4x 5y</u>		
	Indifferent	Comfortable, Contented		Angry Hostile
Stability of Mood	<u>1x</u>	<u>3x 4y</u>	<u>1x 1y</u>	
	Invariable	Moderately Stable		Extremely Cycloid
Frustration Tolerance	<u>3x 1y</u>	<u>2x 3y</u>	<u>1y</u>	
	Imperturbable	Moderately Disturbed		Frustration extremely disrupting

Selection Pattern--Child A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meat or Meat Substitute																				
Roast Beef			x		x							x		x	x		x			x
Roast Chicken	x				x							x		2x	x			2x	x	2x
Broiled Flounder	x																			
Beef Pattie				x																
Cheese	2x	2x	x	x	x	x	2x	2x	2x	2x	2x	x	2x		3x	x	2x	x	2x	2x
Boiled Egg													x							
Vegetables																				
Broccoli																				
Green Beans			x	x					x	x						x				
Green Peas																				
Buttered Carrots																				
Diced & Buttered Potato																				
Buttered Beets																				
Finger Foods																				
Carrot Sticks	x	x	x		x	x	x		x		x	x	x	x	x	x	x	x	x	x
Celery Sticks	x		x					x						x	x		x			
Lettuce				x	x			x					x		x		x	x	x	
Tomato Wedge					x						x					x				
Raw Cauliflower						x														
Apple Wedge	x			x				x		x						x				x
Dessert																				
Sliced Peaches																				
Pineapple Chunks																				
Applesauce																				
Jello	x	x	x						x			x		x						
Pear Chips							x													
Raisins																				
White Bread		x	x			x	x		x	x	x								x	x
Milk		x	x	x	x	x	x	x	x	2x	2x	x	x	x	x	x	x	x	2x	2x

Selection Pattern--Child B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meat or Meat Substitute																				
Roast Beef												x								
Roast Chicken																				
Broiled Flounder	2x	4x	x	4x	3x	2x	3x	2x	2x	3x	2x	2x	x	2x	x		x	2x	x	2x
Beef Pattie	2x													x						
Cheese																				
Boiled Egg																				
Vegetables																				
Broccoli																				
Green Beans																				
Green Peas																				
Buttered Carrots																				
Diced & Buttered Potato																				
Buttered Beets										x										
Finger Foods																				
Carrot Sticks																				
Celery Sticks																				
Lettuce																				
Tomato Wedge																				
Raw Cauliflower																				
Apple Wedge				x		x	x													
Dessert																				
Sliced Peaches	2x	3x	2x	x	x	x	2x	x	2x	2x	2x	x	x	x	x	x	x	x	x	x
Pineapple Chunks	x	x	2x		x	x	x	2x	2x	2x	2x	x	x	x	x	x	x	x	x	x
Applesauce	x	x	2x	3x	x	x	2x	2x	3x	2x	2x	2x	x	2x	x	x	x	2x	x	x
Jello	2x	2x	2x		x			2x	x	2x	2x	4x	4x	x	4x	x	3x	5x	2x	3x
Pear Chips	x	2x	2x	x	x		x	2x	x	2x	2x	x	x	2x	x	x	x	x	x	
Raisins		x								x				x	x	x	x		x	
White Bread	x	x	2x	3x	x	x	x	2x	2x	x	2x	2x	x	2x	x	x	x	2x	x	x
Milk	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Selection Pattern--Child C

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meat or Meat Substitute																				
Roast Beef					x											x				
Roast Chicken	x						x		x										x	
Broiled Flounder				x				x											x	
Beef Pattie	x	x		x	x		x	x			x			x				x	x	2x
Cheese	x	x	x	x	x	x	x	x	x	x	x	2x	x	x	x	x	x	x	x	x
Boiled Egg	x	2x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2x
Vegetables																				
Broccoli			x	x	x							x								
Green Beans	x	x	x	x	x	x	x	x	x	x		x	x		x		x			x
Green Peas	x	x	x	2x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x
Buttered Carrots		x		x	x										x			x		
Diced & Buttered Potato			x	x	x		x	x	x				x						x	x
Buttered Beets		x														x				
Finger Foods																				
Carrot Sticks	x	x		x	x				x			x							x	x
Celery Sticks					x											x				
Lettuce																		x		
Tomato Wedge																		x		
Raw Cauliflower																				
Apple Wedge	x	x	x	x	x	x	x		x				x		x			x		x
Dessert																				
Sliced Peaches	x		x		x	x	x	x		x	x			x	x					x
Pineapple Chunks	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Applesauce		x		x	x	x	x	x	x	x	x			x		x	x	x	x	x
Jello	x	x	2x	x	x	x	x	5x	6x	4x	4x	x	2x	x	2x	2x	3x	x	2x	x
Pear Chips	x	x	x	x	x	x	x		x		x			x			x	x	x	x
Raisins	x	x	x	2x	x	x	x	x	x	x	x	2x	x	x	x	x	x	x	x	x
White Bread	x	2x	2x	x	x	x	x	x	x	x	x	4x	x	x	x	x	x	x	x	x
Milk	x	x	x	x	x	2x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Selection Pattern--Child D

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meat or Meat Substitute																				
Roast Beef	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Roast Chicken																				
Broiled Flounder																				
Beef Pattie	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Cheese	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x			x
Boiled Egg																				
Vegetables																				
Broccoli																				
Green Beans																				
Green Peas		x		x		x														
Buttered Carrots		x																		
Diced & Buttered Potato								x												
Buttered Beets																				
Finger Foods																				
Carrot Sticks	x		x				x	x	x		x									
Celery Sticks	x		x				x												x	x
Lettuce																				
Tomato Wedge																				
Raw Cauliflower																				
Apple Wedge		x					x			x	x		x		x	x		x	x	x
Dessert																				
Sliced Peaches																				
Pineapple Chunks			x		x	x	x		x	x	x	x		x	x	x	x	x	x	x
Applesauce	x	x	x		x	x			x	x	x		x	x	x	x	x	x	x	x
Jello		x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x
Pear Chips																				
Raisins																				
White Bread				x						x	x	2x	x	x	x	x	x	x	x	x
Milk	2x	x	x	2x	x	x	x	x	x	2x	x	x	2x	x	x	2x	x	2x	x	2x



Selection Pattern--Child E

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Meat or Meat Substitute																				
Roast Beef	x	x	x	x	x	x	x	x	x	x	x	x	x	x	2x	x	x	x	x	x
Roast Chicken	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Broiled Flounder	2x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Beef Pattie										x										
Cheese	x	x					x	x	x	x	x	x	x	x	x	x	x	x	x	x
Boiled Egg			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Vegetables																				
Broccoli																				
Green Beans																				
Green Peas																				
Buttered Carrots																				
Diced & Buttered Potato																				
Buttered Beets																				
Finger Foods																				
Carrot Sticks	x		x								x		x	x	x	x	x	x	x	x
Celery Sticks			x										x	x	x	x	x	x	x	x
Lettuce																				
Tomato Wedge																				
Raw Cauliflower																				
Apple Wedge																				
Dessert																				
Sliced Peaches										x	x			x		x	x		x	x
Pineapple Chunks																				
Applesauce	2x	2x	2x	x	x	2x	x	x	x	x	x	x	x	x	2x	x	x	x	x	x
Jello											x	2x	x	x	x	2x	x	x	2x	x
Pear Chips																				
Raisins																				
White Bread																x		x		x
Milk	2x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Form to be used in recording daily food selection and amount consumed.

Child's Name \_\_\_\_\_ Date \_\_\_\_\_

Foods	Number of 1st Serving	Number of Additional Servings	Amount of First Serving	Amount of Additional Serving	Plate	
					Table Waste	Am't Con- sumed
Meat or Meat Substitute						
Roast Beef						
Roast Chicken						
Broiled Flounder						
Beef Pattie						
Cheese						
Boiled Egg						
Vegetables						
Broccoli						
Green Beans						
Green Peas						
Buttered Carrots						
Diced & Buttered Potato						
Buttered Beets						
Finger Foods						
Carrot Sticks						
Celery Sticks						
Lettuce						
Tomato Wedge						
Raw Cauliflower						
Apple Wedge						
Dessert						
Sliced Peaches						
Pineapple Chunks						
Applesauce						
Jello						
Pear Chips						
Raisins						
White Bread						
Milk						

STATEMENT OF FOOD SELECTION BY TWENTY-THREE  
 CHILDREN DURING A PERIOD OF TWENTY DAYS AT SCHOOL  
 BY THE TOTAL NUMBER OF SELECTIONS  
 OF EACH FOOD

Food and Unit Measurements	Number of Times Selected
Apples	174
Baked Potatoes	150
Boiled Eggs	231
Roast Chicken	207
Roast Beef	150
Smoked Fish	143
Vegetables	
French Peas	150
Green Beans	125
Onion and Buttered Potatoes	113
Roasted Carrots	55
Roasted Potatoes	40
Spinach	35
Other Foods	
Apple Wedge	203
Carrot Sticks	140
Celery Sticks	40
Shrimp Wafers	25
Lettuces	15
Ice Cream	40
Desserts	
Cakes	130
Chocolate Candy	115
Applesauce	204
Jellies	203
Stewed Apples	115
Fruit Chips	104
White Bread	40
Milk	435

APPENDIX C

FREQUENCY OF FOOD SELECTION BY TWENTY-FOUR  
NURSERY SCHOOL CHILDREN AT THE NOON MEAL  
DURING A PERIOD OF TWENTY DAYS AS SHOWN  
BY THE TOTAL NUMBER OF SELECTIONS,  
OF EACH FOOD

<u>Meat and Meat Substitutes</u>	<u>Number of Times Selected</u>
Cheese	336
Beef Pattie	255
Boiled Egg	231
Roast Chicken	207
Roast Beef	180
Broiled Flounder	163
<u>Vegetables</u>	
Green Peas	158
Green Beans	125
Diced and Buttered Potato	123
Buttered Carrots	55
Buttered Beets	40
Broccoli	36
<u>Finger Foods</u>	
Apple Wedge	203
Carrot Sticks	166
Celery Sticks	88
Tomato Wedge	85
Lettuce	58
Raw Cauliflower	43
<u>Dessert</u>	
Jello	520
Pineapple Chunks	311
Applesauce	302
Raisins	263
Sliced Peaches	219
Pear Chips	195
White Bread	304
Milk	430

FOODS CONSUMED BY THE TWENTY-FOUR  
NURSERY SCHOOL CHILDREN AT THE  
NOON MEAL DURING A PERIOD OF  
TWENTY DAYS IN THE PER CENT  
OF GRAMS SELECTED

<u>Meat and Meat Substitutes</u>	<u>Per Cent Consumed of Selected Amount</u>
Broiled Flounder	80
Boiled Egg	74
Cheese	72
Roast Beef	70
Beef Pattie	66
Roast Chicken	57
<u>Vegetables</u>	
Broccoli	69
Diced and Buttered Potato	63
Green Beans	58
Green Peas	49
Buttered Carrots	38
Buttered Beets	26
<u>Finger Foods</u>	
Apple Wedge	78
Raw Cauliflower	69
Tomato Wedge	65
Carrot Sticks	60
Lettuce	46
Celery Sticks	37
<u>Desserts</u>	
Pineapple Chunks	89
Jello	82
Applesauce	77
Pear Chips	73
Sliced Peaches	69
Raisins	61
White Bread	66
Milk	59